STATISTICS

15 Manufacturers Sell 233,509 Units To United States Distributors During May, 1934

The following 15 member companies of the Refrigeration Division of the National Electrical Manufacturers Association (Nema) reported sales for May, 1934: Crosley Radio Corp., Frigidaire Corp., General Electric Co., Gibson Electric Refrigerator Corp., Kelvinator Corp., Leonard Refrigerator Co., Norge Corp., Rudolph Wurlitzer Mfg. Co., Servel, Inc., Stewart-Warner Corp., Sunbeam Electric Mfg. Co., Trupar Mfg. Co., Uniflow Mfg. Co., Universal Cooler Corp., and Westinghouse Elec. & Mfg. Co.

HOUSEHOLD Lacquer (Exterior) Cabinets with Systems	Domestic Sales Quantity	Domestic Sales Value	Canadian Sales Quantity	Canadian Sales Value	Other Foreign Sales Quantity	Other Foreign Sales Value
1. Under 4.00 cubit feet..	3,466	$ 189,307	1	$ 71	211	$ 12,557
2. 4 to 4.99 cubic feet..	72,642	4,669,332	1,025	63,987	2,754	192,695
3. 5 to 5.99 cubic feet..	57,390	4,550,488	926	73,017	564	46,788
4. 6 to 6.99 cubic feet..	27,065	2,452,080	830	72,268	379	37,076
5. 7 to 7.99 cubic feet..	23,087	2,539,732	247	24,485	344	39,587
6. 8 to 9.99 cubic feet..	3,634	424,370	232	27,163	89	10,099
7. 10 to 12.99 cubic feet..	152	23,483	....	.....	10	1,950
8. 13 to 24.00 cubic feet..	52	9,889	....	.....	....	.....
9. Total Lacquer	**187,488**	**14,858,681**	**3,261**	**260,991**	**4,351**	**340,752**
Porcelain (Exterior) Cabinets with Systems						
10. Under 4.99 cubic feet..	4,894	391,520	....	.....	344	30,870
11. 5 to 5.99 cubic feet..	5,173	482,150	6	626	584	57,097
12. 6 to 6.99 cubic feet..	9,021	1,137,278	47	5,149	405	45,770
13. 7 to 7.99 cubic feet..	11,361	1,450,009	62	8,960	444	57,017
14. 8 to 9.99 cubic feet..	3,037	445,310	24	4,427	109	15,895
15. 10 to 12.99 cubic feet..	1,305	244,739	9	1,553	54	10,269
16. 13 to 24.00 cubic feet..	523	125,298	6	1,296	41	9,334
17. Total Porcelain	**35,314**	**4,276,304**	**154**	**22,011**	**1,981**	**226,252**
18. Total Lines 9 and 17	**222,802**	**19,134,985**	**3,415**	**283,002**	**6,332**	**567,004**
19. Separate Systems	10,264	465,955	1	58	.....	.....
20. Separate Household Low Sides	443	8,126	12	194	419 490	24,780 5,591
21. Total Lines 18, 19, 20..	**233,509**	.....	**3,428**	.....	**7,241**	.....
22. High Sides, ¼ hp. or Less	3,366	124,013	40	2,103	398	20,930
23. Cabinets—No Systems..	67	5,198	....	.....	7	770
24. Total Household	....	**19,738,277**	....	**285,357**	....	**619,075**
COMMERCIAL						
25. Water Coolers with High Sides	2,122	201,328	7	648	39	3,646
26. Water Coolers with No High Sides	115	6,327	....	.....	2	127
27. Ice Cream Cabinets with High Sides	883	128,614	50	6,758	36	4,550
28. Ice Cream Cabinets with No High Sides	567	76,709	48	5,574	17	1,949
29. Beverage Coolers with High Sides	1,664	126,936	8	637	17	1,438
30. Beverage Coolers with No High Sides	333	24,640	....	.....	13	744
31. Room Coolers with High Sides	279	60,771	....	.....	3	310
32. Room Coolers with No High Sides	285	33,360	2	217	35	3,830
Extra High Sides						
33. ⅓ to ½ hp. Incl.	4,084	338,417	88	7,461	1,627	112,351
34. Above ½ to 1 hp. Incl..	1,738	219,617	61	7,950	126	16,942
35. Above 1 to 5 hp. Incl..	1,076	195,891	12	2,177	84	15,997
36. Above 5 to 10 hp. Incl..	162	84,226	....	.....	5	2,780
37. Above 10 hp.	30	19,922	....	.....	....	.....
38. Total Lines 33, 34, 35, 36, and 37	**7,090**	.....	**161**	.....	....	.....
39. Total Lines 25, 27, 29, 31, and 33	**12,038**	.....	**226**	.....	**1,842**	.....
40. Extra Commercial Low Sides	6,211	201,703	296	8,709	1,937 938	 27,913
41. Miscellaneous Cases and Cabinets	52	16,008	5	1,110	14	3,066
42. Total Commercial	....	**1,734,469**	....	**41,241**	....	**195,643**
43. Totals—Household and Commercial	....	**$21,472,746**	....	**$326,598**	....	**$314,718**

Clark Co. Distributing Fairbanks-Morse Line

DENVER—Robert F. Clark Co., has started distribution of Fairbanks-Morse refrigerators.

McCORD
REFRIGERATION
PRODUCTS
◇
COMMERCIAL EVAPORATORS
◆
DOMESTIC EVAPORATORS
◆
CONDENSERS
◆
METLFLEX ICE TRAYS
◆
SPIRAL FINNED TUBING
◆
SPIRAL COPPER FINNED IRON, STEEL OR COPPER PIPE
◇
McCORD RADIATOR & MFG. CO.
DETROIT, -:- MICH.

New York Again Buys Most Refrigerators, May Report Shows

States and Territories	Household Low Sides
Alabama	2,698
Arizona	627
Arkansas	1,700
California	10,753
Colorado	2,163
Connecticut	3,390
Delaware	486
Dist. of Columbia	2,570
Florida	1,716
Georgia	2,748
Idaho	824
Illinois	21,224
Indiana	6,189
Iowa	4,195
Kansas	3,486
Kentucky	3,042
Louisiana	1,580
Maine	1,189
Maryland	4,312
Massachusetts	7,673
Michigan	10,345
Minnesota	3,327
Mississippi	718
Missouri	8,621
Montana	1,341
Nebraska	2,869
Nevada	217
New Hampshire	995
New Jersey	10,533
New Mexico	515
New York	29,736
North Carolina	3,515
North Dakota	523
Ohio	15,483
Oklahoma	3,279
Oregon	3,082
Pennsylvania	23,867
Rhode Island	1,434
South Carolina	1,396
South Dakota	923
Tennessee	3,775
Texas	8,077
Utah	1,106
Vermont	506
Virginia	3,473
Washington	3,419
West Virginia	3,297
Wisconsin	3,964
Wyoming	608
Total United States	**233,509**
Total Canada	3,428
Other Foreign (Incl. U. S. Possessions)	7,241
Total for World	**244,178**

186,439 Household Refrigerators Produced by 15 Member Companies of Nema in May; Stocks Reported

U. S. A. INVENTORIES — HOUSEHOLD Lacquer (Exterior) Cabinets with Systems	Factory, Branch & Warehouse Quantity	Factory, Branch & Warehouse Value	Distributors Quantity	Distributors Value	Dealers Quantity	Dealers Value	Production Quantity
1. Under 4.00 cubic feet	225	$ 12,161	373	$ 20,915	4	$ 282	3,734
2. 4 to 4.99 cubic feet	24,833	1,759,921	17,112	1,126,514	13,739	922,801	36,853
3. 5 to 5.99 cubic feet	18,394	1,580,461	12,836	1,034,375	10,366	801,837	27,164
4. 6 to 6.99 cubic feet	16,210	1,556,922	11,464	1,107,790	11,499	1,068,668	6,688
5. 7 to 7.99 cubic feet	18,741	2,261,175	6,608	765,405	5,710	674,066	14,483
6. 8 to 9.99 cubic feet	7,852	901,200	1,762	212,235	2,385	272,134	1,401
7. 10 to 12.99 cubic feet	575	114,704	156	29,451	79	14,984	5
8. 13 to 24.00 cubic feet	82	10,120	67	8,634	14	1,677	14
9. Total Lacquer	**86,912**	**8,196,664**	***55,755**	***4,724,725**	**43,796**	**3,756,449**	***100,215**
Porcelain (Exterior) Cabinets with Systems							
10. Under 4.99 cubic feet	9,378	837,037	1,522	131,662	1,713	143,578	968
11. 5 to 5.99 cubic feet	2,027	200,800	2,247	233,077	1,009	102,381	4,538
12. 6 to 6.99 cubic feet	7,877	888,756	5,653	692,027	5,569	649,165	4,179
13. 7 to 7.99 cubic feet	17,234	2,176,055	5,998	815,472	6,863	896,549	2,376
14. 8 to 9.99 cubic feet	6,798	962,759	2,883	435,377	2,953	428,690	919
15. 10 to 12.99 cubic feet	1,626	290,094	605	118,641	724	133,157	137
16. 13 to 24.00 cubic feet	1,547	370,236	371	90,722	221	50,205	15
17. Total Porcelain	**46,487**	**5,725,737**	***25,196**	***3,173,765**	**19,052**	**2,403,725**	***13,777**
18. Total Lines 9 and 17	**133,399**	**13,922,401**	***80,951**	***7,898,490**	**62,848**	**6,160,174**	***113,992**
19. Separate Systems	24,351	1,351,778	.....	.....	.....	.....	25,362
20. Separate Household Low Sides	8,045	123,716	330	6,002	204	3,916	47,085
21. Total Lines 18, 19, and 20	**165,795**	.....	***81,281**	.....	**63,052**	.....	***186,439**
22. High Sides ¼ hp. or Less	1,524	79,613	186	9,952	136	7,354	49,407
23. Cabinets—No Systems	45,298	2,371,003	43	3,134	17	1,694	44,508
24. Total Household	.....	**17,848,511**	.....	***7,917,578**	.....	**6,173,138**	.....
COMMERCIAL							
25. Water Coolers with High Sides	7,247	721,502	2,096	227,823	626	59,519	780
26. Water Coolers with No High Sides	1,081	45,635	70	3,497	46	2,339	343
27. Ice Cream Cabinets with High Sides	1,344	187,482	91	13,256	9	1,282	.....
28. Ice Cream Cabinets with No High Sides	2,827	380,270	260	32,443	25	3,111	.....
29. Beverage Coolers with High Sides	1,019	89,304	157	10,443	171	11,229	677
30. Beverage Coolers with No High Sides	583	38,128	173	10,700	98	8,624	33
31. Room Coolers with High Sides	421	131,977	78	17,153	28	6,317	67
32. Room Coolers with No High Sides	1,260	138,230	247	24,894	62	6,805	133
33. Extra High Sides, ⅓ to ½ hp. incl.	4,160	436,073	1,182	110,862	476	40,316	1,990
34. Extra High Sides, Above ½ to 1 hp. Incl.	1,651	217,631	667	77,781	287	37,023	694
35. Extra High Sides, Above 1 to 5 hp. Incl.	1,663	370,838	529	117,657	158	33,469	626
36. Extra High Sides, Above 5 to 10 hp. Incl.	61	36,592	2	1,292	.....	.....	16
37. Extra High Sides, Above 10 hp.	.....	.....	.....	.....	.....	.....	4
38. Total Lines 33, 34, 35, 36, and 37	**7,535**	.....	**2,380**	.....	**921**	.....	***4,875**
39. Total Lines 25, 27, 29, 31, and 38	**17,566**	.....	**4,802**	.....	**1,755**	.....	***6,399**
40. Extra Commercial Low Sides	22,981	652,404	3,417	117,258	1,187	32,931	2,046
41. Miscellaneous Cases and Cabinets	905	245,970	179	58,299	41	11,666	42
42. Total Commercial	.....	**3,692,036**	.....	**823,358**	.....	**254,631**	.....
43. Totals—Household and Commercial	.....	**$21,540,547**	.....	***$8,740,936**	.....	**$6,427,769**	.....

*Note: These totals are not the sum of the breakdown figures as two companies do not report on individual items.

CATALOGS

Penn Temtrol

The Penn Temtrol, a temperature control for use with oil burners and furnaces, is described in an attractive 8½ by 11 in. booklet issued by the Penn Electric Switch Co., Des Moines. Action of the temperature regulator is explained in detail. Pictures of the device alone are shown as well as photographs of installations. Charts comparing performance of Temtrol with conventional thermostats are also included.

Gas Masks

A mailing piece released by Mine Safety Appliances Co., Pittsburgh, explains the M.S.A. Ammonia Gas Mask manufactured by the company. Protection of workers in ice and refrigeration plants from irritant and poisonous fumes is the function of the canister-type mask described.

Wagner D.C. Motors

Direct-current motors is the subject of two new loose-leaf bulletin sheets from the Wagner Electric Corp., St. Louis. The sheets are designated as "Bulletin 167, Part 8." Motor design and construction details are fully described, and a number of photographs supplement the explanatory notes.

Brunner Air Compressors

Catalog No. 28, covering the Brunner line of air compressors, has been released by Brunner Mfg. Co., Utica, N. Y. Descriptions, photographs, and detailed specifications of each model of air compressor are included. Air tools and accessories are also to be found in the catalog. A loose-leaf insert lists net dealer prices of the various products shown.

York Compressors

York Ice Machinery Co., York, Pa., has issued two new folders covering commercial machines. One deals with York Freon Refrigerating Units picturing two models, one air cooled and the other water cooled. Several illustrations are given of interiors of meat markets. The second folder shows a photograph of York Ammonia Refrigerating Unit, model No. 4-34W, and gives complete specifications of the machine.

Wolverine Products

A schedule concerning Wolverine products has been put out by Wolverine Tube Co., Detroit. Items covered which are of interest to the refrigeration industry are: copper fin tubing, extended surface; dehydrated copper refrigeration tubing; extended surface copper and aluminum fin tubing; and fabricated copper, brass, and aluminum tubes. Several tables and charts are included, some of the information given being: dimensions of tubing, prices, comparison of wire gauges, weights. A working pressure chart for seamless tubes and a table of physical properties are also shown.

Frigidaire Installation Cools Restaurant Air to 80°

FRESNO, Calif. — Becker & Bell have just installed a Frigidaire central air-conditioning system in the local restaurant of George Mardikian here.

The system performs summer functions only, with a 7½- ton compressor in the basement serving refrigerant for direct expansion into two Frigidaire SU-3 coils installed 10 ft. above the floor of the restaurant, one at each end of the room.

Approximately 45,000 cu. ft. of space is conditioned by the installation, with indoor temperatures maintained at about 80° F. and the relative humidity from 40 to 50 per cent. The indoor temperature is regulated by Frigidaire thermostat to stay not more than 25° F. below the outside temperature, nor less than 75°F.

Up to 10 per cent of fresh air, depending upon occupancy of the building, is supplied by the system. The restaurant operates in the street level floor to a two story building in the middle of a block, so the sun load was not a controlling factor.

San Diego Appliance Show Opens Sept. 26

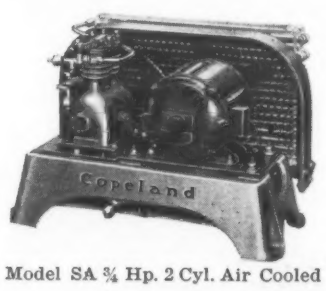
SAN DIEGO, Calif.—Under sponsorship of the Bureau of Radio and Electrical Appliances of San Diego County, local dealers and distributors of electrical equipment will hold their second annual exposition here Sept. 26 to 30 on the Municipal Pier.

Almost twice as much space will be used this year, according to J. Clark Chamberlain, secretary-manager of the bureau. Assisting in staging the show will be the Electric Club of San Diego, the city electrical department, and the Electrical Contractors Association. No admission charge will be made.

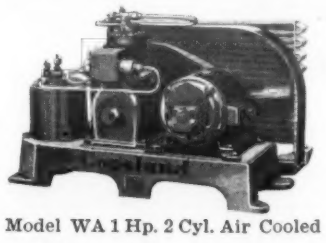
Alter Holds Service Schools for Dealers

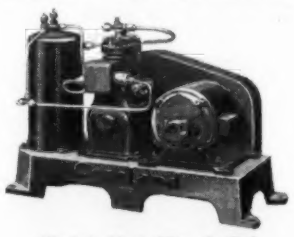
CHICAGO—Harry Alter Co., Grunow distributor for northern Illinois, is holding service schools for dealers and their service men every Wednesday night in the company's building at 1728 S. Michigan Ave. The sessions are conducted by H. S. Dekker, Alter refrigeration service engineer.

More Net Profit!



Model SA ¾ Hp. 2 Cyl. Air Cooled


Model WA 1 Hp. 2 Cyl. Air Cooled


Model X 1 Hp. 2 Cyl.
V 1½ Hp. 2 Cyl.

The average sale of Commercial equipment nets the distributor considerably more profit than that secured on a domestic sale. In addition to generous discount on condensing unit, there is a good profit on cases, walk-in coolers, milk coolers, ice cream cabinets and other similar equipment.

Demand for commercial refrigeration is year-round, there are no slack seasons.

Air conditioning, the newest user of automatic refrigeration, is bound to require a tremendous number of units, and the demand is just commencing.

Distributors who handle Copeland equipment have a range of 21 distinct sizes of commercial condensing units, 1-6 to 3 h.p., 100 lb. to 3250 lbs. I.M.E. per 24 hours, suitable for every requirement of automatic refrigeration.

For a year-round business the Commercial side of refrigeration cannot be beaten.

Copeland invites able, active and progressive distributors to secure details on commercial franchises. A new booklet, fully descriptive of the line, is free for the asking.

COPELAND REFRIGERATION CORP., Mount Clemens, Mich.
Division of Winslow-Baker-Meyering Corp.

Copeland
DEPENDABLE ELECTRIC REFRIGERATION

62

THE NEWSPAPER OF THE INDUSTRY

ELECTRIC REFRIGERATION NEWS

WRITTEN TO BE READ ON ARRIVAL

Registered U. S. Patent Office

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Crosley Granted TVA Emblem For Chest Model

$72.50 Model Approved for EH&FA Financing in Valley Area

CHATTANOOGA, Tenn., July 28.—(Special wire to ELECTRIC REFRIGERATION NEWS)—The Electric Home and Farm Authority today announced approval of a new type electric refrigerator produced by the Crosley Radio Corp. to be for sale in the Tennessee Valley area for a price of $72.50, delivered to the customer's home.

At the same time announcement was made by David E. Lilienthal, president of EH&FA that the low-cost models of refrigerators approved for EH&FA financing would be marketed throughout the country at the same price prevailing in the Tennessee Valley. "This represents a new policy of the directors of EH&FA," states Mr. Lilienthal.

"Through action on the part of the manufacturers, these low-cost standard-quality models will become available to homes everywhere in the country.

"Although these models were developed for the EH&FA program in the South, the benefits of the program to the consumer are now placed on a national basis."

The TVA insignia of Electric Home and Farm Authority, indicating EH&FA approval for financing, will be carried, however, on appliances sold in areas where there is an agreement between EH&FA and the electric utility serving the area providing for low rates.

The new Crosley model is the second of the new low-cost model refrigerators to be approved for EH&FA financing, the first being General

(Concluded on Page 2, Column 4)

First Norgettes to Be Shipped to Field Aug 6.

DETROIT—Designated as the Model T-20 Norgette, a new chest-type refrigerator has been produced by Norge Corp. to retail for $77.50 f.o.b. Muskegon, Mich. First shipments will leave the Muskegon plant during the week of August 6.

The Norgette chest model has 5.8 sq. ft. of food storage space (Nema rating). Its two ice trays will make 36 cubes and 2¾ pounds of ice. The cabinet has a porcelain interior and top, lacquer sides and front. It stands 36 inches high. One basket shelf and one sliding shelf are provided to facilitate food handling.

The refrigerator is powered by the standard Norge Rollator mechanism.

Inasmuch as the Norgette chest model refrigerator will hold 36 standard 12-ounce bottles, Norge officials expect it to be sold as a beverage cooler. Other commercial uses for this refrigerator are predicted.

Leonard Chest to Sell for $77.50

DETROIT — Leonard Refrigerator Co. has announced a new lift-lid chest-type electric refrigerator to retail at $77.50. Quantity production of the new model, which is to be distributed nationally, will be started at once.

The new refrigerator, to be known as the "Leonard Electric Chest," is 32⅝ in. high, 27⅞ in. wide and 19 in. deep. Shelf area totals 4.3 sq. ft. and net capacity is 2.00 cu. ft.

Features of the new model include an eight-position temperature selector that is located on the front of the cabinet; two freezing trays, producing 3.2 lbs. of ice; a stainless porcelain bottom in the food compartment; a

(Concluded on Page 2, Column 5)

Nema Firms Sell 891,837 Units in First 6 Months

15 Manufacturers Set New Sales Record in First Half of Year

By A. J. Cutting

DETROIT — Continuing record-breaking performance which has characterized sales activities in 1934, the 15 reporting member companies of the Refrigeration Division of the National Electrical Manufacturers Association have aggregated sales of 891,837 household electric refrigerators during the first six months of 1934.

The six-months total for 1934 exceeds the 554,447 units sold in the same period of 1933 by 337,390, which represents an increase of better than 60 per cent. A further comparison which more impressively indicates the extent to which sales are ahead of 1933 shows that the 1934 six-months figure is only 17,218 units short of the total of 909,055 reported for Nema companies for the entire year 1933.

June sales by Nema companies were reported at 170,544 units, this being the first month of the current year in which sales have not been higher than in the corresponding month of any past year. In June, 1933, sales totaled 175,550 units, being about 3 per cent above this year's June figure.

With only slightly over 100,000 units to go, it seems assured that Nema companies will pass the million mark in unit sales during 1934.

The 1934 monthly sales which make up the six-months figure are shown below in comparison with corresponding months of 1933, together with the percentage of increase or decrease.

	1934	1933	Per Cent of Increase or Decrease
January .	34,514	16,351	+111
February	75,007	30,422	+146
March ...	135,470	49,823	+172
April	232,124	107,182	+116
May	244,178	175,119	+ 40
June	170,544	175,550	— 3
6 Mo. Total	891,837	554,447	+ 60

Exports by the 15 Nema companies to foreign countries and U. S. Possessions totaled 48,387 units during the six-months period, setting total U. S. sales at 843,450 units.

The following 14 companies reported their sales regularly during the first six months of the current year: Crosley, Frigidaire, General Electric, Gibson, Kelvinator, Leonard, Norge, Servel, Stewart-Warner, Sunbeam, Uniflow, Universal Cooler, Westinghouse, and Wurlitzer. Trupar reported sales for five months, but was not included in the June records.

Companies which are members of the Refrigeration Division of Nema but whose sales are not included in the total are as follows: Apex, Merchant & Evans, Jomoco, Potter, and Sparks-Withington.

The detailed summary of June sales by Nema members appears on page 18 of this issue.

134,490 Machines Sold by Crosley In 15 Months

CINCINNATI, July 31—Sale of electric refrigerators by Crosley Radio Corp. in June totaled 25,250 units, Powel Crosley, Jr., president, stated today. This compares with the sale of 11,750 units in June, 1933, an increase of 115 per cent.

During the 15-month period ending June 30, a total of 134,490 electric refrigerators were sold by the Crosley Radio Corp., as compared with 42,657 for the similar period ending June 30, 1933.

In the 12-month period ending June 30, 1934, Crosley sold 106,509 refrigerators.

So great has been the demand for refrigerators this season, Mr. Crosley said, that production for the most part has lagged from 10,000 to 45,000 units behind current orders.

Kelvinator Used in Stratosphere Camp

RAPID CITY, S. D.—To a Kelvinator refrigerator was entrusted the job of preserving the photographic record of Saturday's flight into the stratosphere—a venture which, although nearly ending in tragedy and although failing to set a new altitude mark, caught the attention of the world.

When the gondola of the huge National Geographic Society—Army Air Corps balloon, after carrying its three occupants to a height of 60,000 feet, came hurtling to earth on a hillside near Holdrege, Nebraska, most of the priceless scientific data was lost. Hope is still held, however, that some of the photographs taken at the peak of the ascent will be usable.

The refrigerator, a standard Kelvinator domestic model, was installed

(Concluded on Page 2, Column 5)

Winslow, Baker, Meyering Buys Trupar Mfg. Co.

Manufacture of Mayflower Equipment to Be Continued

By Phil B. Redeker

DETROIT — Winslow-Baker-Meyering Corp. last week announced that it has purchased the assets of Trupar Mfg. Co., manufacturer of Mayflower household and commercial refrigeration and air-conditioning equipment, from E. P. Larsh, trustee. Trupar had been operating in trusteeship for the past few weeks.

The Trupar plant at Dayton, Ohio will be operated as a subsidiary of Winslow-Baker-Meyering Corp., as is Copeland Refrigeration Corp., Zerozone Corp., Kellogg Mfg. Co., and several other enterprises, according to Dallas E. Winslow, president of the parent corporation.

First shipment of Mayflower household and commercial refrigeration units under the new management was to be made Tuesday of this week, production being interrupted only one week by the sale of the assets, Mr. Winslow announced.

Distribution of Trupar products will be continued through the channels established by the former Trupar management, and will not be interlinked with the Copeland or Zerozone distributing organizations, according to statements made by the president of Winslow-Baker-Meyering Corp. Operating personnel will be retained for the most part from the former Trupar organization, with a new general manager to be named by Winslow-Baker-Meyering Corp. some time this week.

The electric pump and water soft-

(Concluded on Page 2, Column 5)

'Mystery Box' Stops Passers-by

DETROIT—A limited edition of a new "mystery model" Norge rollator refrigerator, known as the P78-C, has been introduced by Norge Corp. for use by dealers as a special attraction to entice prospects to the showroom during the summer months.

Only 6,000 such units have been produced, the intention being to provide one to each dealer for promotion purposes rather than for sale.

This new Norge refrigerator has a marble finish of grey pearl tone, designed to appeal to women.

Recently, a "mystery model" was displayed at a refrigerator show in Albany, N. Y. and reactions of passersby were checked. Better than 80 per cent of all people passing the Norge display stopped to inspect it, according to the report.

Promotion of this new Norge model is not being confined to store display and demonstration. Many dealers are using it in unique displays throughout their neighborhoods, transporting it to prominent residential corners on a pleasantly decorated truck.

Westinghouse Brings Out 2 & 3 Hp. Units

MANSFIELD, Ohio — Westinghouse Electric & Manufacturing Co., has just announced, through its commercial refrigeration sales division, two larger capacity open-type condensing units using Freon for the refrigerant. The models are two and three horsepower units, and have several outstanding features new to commercial condensing units.

These units are entirely hooded to give protection to the unit and, at

(Concluded on Page 2, Column 4)

Kiddoo to Direct F-M Home Appliances

CHICAGO — Board of directors of Fairbanks-Morse Home Appliances, Inc., a subsidiary of Fairbanks, Morse & Co., has elected S. T. Kiddoo president of the company. Mr. Kiddoo is vice president and treasurer and also a director of the parent organization.

Mortimer Frankel, general manager of Fairbanks-Morse Home Appliances, Inc., was elected a vice-president and will continue in direct charge of all activities of the subsidiary company.

John W. Million, Jr., is chief engineer, production manager and treasurer. Addison Brown is sales manager.

New Westinghouse Chest Model

MANSFIELD, Ohio—A new chest-type refrigerator with 2 cu. ft. storage capacity, to sell at $77.50, f.o.b. factory, was announced last week by the Westinghouse Electric & Mfg. Co.

The standard five-year service protection plan on this new Westinghouse refrigerator model DC-20, may be obtained at a cost of $7.00 additional.

Lowell Thomas (right) and P. Y. Danely, manager of the Westinghouse refrigerator department, are pictured above with the new model.

Exterior of the chest model is finished in white high bake Dulux while the interior is of one-piece porcelain.

It has a hermetically sealed compressor, a ⅛-hp. motor. The unit is directly controlled by a temperature selector on the outside of the cabinet.

The chest model evaporator is constructed of "Sanalloy." Two and a quarter pounds of ice or 20 cubes can be made with a single freezing.

The chest model is 36 in. high and 22⅛ in. wide, by a depth of 20¼ in. Its size allows it to be placed in corners or in other hitherto inaccessible places.

Base of this model is slightly recessed and is finished in black.

TVA COMMENT

Function of Distributors

Hopkins Equipment Company, Inc.
418 Peachtree Street, N. W.
Atlanta, Ga.

Editor:

Since the writer, together with several other committeemen from Georgia, was so strongly against the TVA refrigerator proposition as was perpetrated so favorably for the monopolistic public utilities and certainly adversely and disastrously to the independent dealers and distributors of refrigerators, quite naturally your editorial in July 18 issue was of extreme importance.

Needless to say that while the refrigeration industry has enjoyed rapid and reasonable profitable growth during recent years, such educational progress and distribution of refrigerators throughout the entire country could have never been obtained without the so-called independent distributors and dealers. We simply mean that even though some of the narrow-minded manufacturers who feel they can do business direct with the dealers are totally blind to the disadvantages of such distribution, or they are trying to tell dealers and distributors how to merchandise without first knowing themselves.

The function of a refrigerator distributor is fundamentally sound when it comes to getting distribution throughout the entire territory. Instead of the distributor being able to stock and ship refrigerators to the independent dealers as one may be led to believe when he listens to the utilities, or the officials of the TVA, the distributor not only has to go out and work to sell the dealers on the idea, but actually has to go out and educate the dealers and their salesmen on how to sell refrigerators, how to keep prospects, how to ring door bells, how to make demonstrations, and above all, the distributor has to spend plenty of time and money through the mechanical department in educating these dealers how to properly service refrigerators. And even then on at least 25 to 50 per cent of the service calls, the distributor 50 to 100 miles away is called upon by the dealer to send down a service man to give service—all of which costs money.

If Mr. Lilienthal of TVA, or Mr. Munger of the EH&FA, or Mr. Charlie Collier of the Georgia Power Co., has any doubt as to the disastrous effects this TVA refrigerator proposition is having, we invite, either, or all of them, to come down throughout this territory and make a visit with the writer, or any other distributor, and contact some of the dealers, and see first hand that it is not only demoralizing sales for the independent dealers and distributors, but is absolutely causing dealers to discontinue the refrigeration business.

As an example, we are enclosing, herewith, copies of most recent communication we have received from a couple of our dealers. These are mere samples of what is happening almost daily throughout our territory. Not only with us, but with other distributors of mechanical refrigerators, and if you so desire, you have our permission to publish either or both of these letters in your paper.

We were very glad to note the front page article in July 18 issue and feel that such legitimate harassing from every possible source similar to this will cause the Georgia Power Co. and certain other officials to realize that the TVA merchandising plan in its present form is most devastating.

W. D. V. HOPKINS.

Dealers Protest in Letters to Distributors

(Copy)
Miller Hardware & Furniture Co.
Nashville, Ga.

Hopkins Equipment Co.
Atlanta, Ga.

Since writing you to ship us the 4 TVA-model refrigerators we have decided to quit the refrigerator business entirely and we are writing you for permission to return these to you without any expense to you.

They are still in the R. R. depot as we have not paid the draft and we ask you to please write the bank to release the draft and bill of lading and let us either prepay the freight back to your place, including drayage both ways, or it may be that we will bring them back on our truck.

Our decision in this matter has been brought about by the fact that the severe competition of Georgia Power Co. here. We cannot hope to make anything in the refrigerator business and have decided to quit trying to sell them. We have on hand, of course, the two previously bought of you, together with several other sizes of another make. To date we are something like $150 expense above profits and no hopes of successfully competing with Georgia Power Co. coupled with the liberal guarantee and service they offer, which, if we should do would be no end to our expense and trouble in the future.

Hope that you can allow us this and we will thank you. Kindly advise immediately and the bank as we are now contemplating sending our truck to Atlanta after a load of merchandise and we can bring these along.

K. M. MILLER.

(Copy)
J. W. Haley
Ashburn, Ga.

Hopkins Equipment Co., Inc.
Atlanta, Ga.

I certainly enjoyed the Norge and Atwater Kent meeting last Tuesday, and appreciate the kindness that each of you showed me while I was in Atlanta.

I have talked to Mr. Haley about stocking and selling some more Norge Electric Refrigerators, he said on account of the Georgia Power Co. here pushing the sale of TVA refrigerators now, that he did not think it was advisable to stock any more Norge at this time.

With kindest personal regards and best wishes, I am

G. H. JOHNSON.

TVA Box Retards Sales

Birmingham Electric Battery Co.
Birmingham, Alabama

Editor:

The ice famine in Birmingham, about which you ask information, is news to me.

The dealers have not tried to meet the utility price on low-priced refrigerators as TVA models have never been advertised in Alabama. The Power Company sold 500 and quit. Frigidaire dealer in Montgomery sold a few. The low-priced TVA box had a retarding effect on refrigerator sales. We have felt this since May 1.

Until about three weeks ago, the Alabama and Birmingham dealers were doing a business-like job, but since then some of the dealers have begun to cut prices and advertise liberal allowances on old ice boxes.

The whole trade is beginning to get very much upset and unless something is done to get the dealers and distributors in line, refrigeration sales are going to be very much affected in the Birmingham district.

There will be another meeting next Monday for the purpose of trying to get the dealers and distributors to cease trading in ice boxes and cutting the price where the ice box is not taken in.

ED. HENLEY, President.

Sales Checked by TVA

E. E. Forbes & Sons Piano Co.
Birmingham, Ala.

Editor:

There has been no shortage of ice. In fact, there are plants that could supply more ice if they had a demand for it.

The TVA business has 'kinda checked up our refrigerator sales to some extent. Our business is fairly good.

E. E. FORBES.

Knoxville Properties Will Go to TVA if Bondholders Agree

KNOXVILLE, Tenn. — Tennessee Valley Authority has announced completion of arrangements for the purchase from Tennessee Public Service Co. of its Knoxville properties, excepting the Watertown-Kingsport transmission line.

The TVA has also disclosed that all of the towns in northern Alabama have accepted its offer to sell local distribution lines and facilities purchased by TVA from Alabama Power Co.

Depends on Bondholders

In buying the Knoxville properties the TVA is paying $6,088,000. The agreement is contingent upon the bondholders turning in their bonds at a price of 96½, the issuing price, by Aug. 8. If by Aug. 8 the company has not been able to get the bonds in at that price the deal is off and Knoxville will then proceed to open bids to build its own facilities.

The TVA will operate the entire system, supplying Knoxville and 27 other communities with Muscle Shoals power. During that time it will add a 10 per cent surcharge to the standard TVA rates, which will go toward paying for the distribution systems. Thus, Knoxville and other municipalities will acquire distribution systems at no cost.

13 Alabama Towns

The thirteen Alabama towns soon to be served with TVA power are Courtland, Decatur, Falkville, Hartselle, Moulton, Red Bay, Russellville, Town Creek, Cherokee, Leighton, Tuscumbia, Sheffield, and Florence.

Under their arrangements with the authority TVA will sell the distribution systems purchased from Alabama Power Co. to the individual municipalities, accepting payment from profits made by the municipalities on the sale of TVA power. Adding to the Standard TVA rate a developmental surcharge of 10 per cent to all rate classifications, TVA estimates that the towns can pay off in 10 years.

In Person

GEORGE MASON
President of Kelvinator, rises from his desk and exhales a vigorous puff of cigar smoke preparatory to going into action.

Crosley & G-E Chests Approved for TVA Financing

(Concluded from Page 1, Column 1)

Electric. Other approvals are expected within the near future.

"The Electric Home and Farm Authority will approve for financing in the EH&FA territory any refrigerator that meets the quality specifications of the authority, sells at a retail price less than $80, and is produced by a manufacturer who meets NRA requirements and has been manufacturing for more than one year."

These appliances will be marketed with the TVA insignia of Electric Home and Farm Authority wherever EH&FA has an agreement with the electric utility as to residential electric rates, collection service, and installation.

G. D. Munger, EH&FA commercial manager, announced that several manufacturers are now in production on the new EH&FA models, and that they would soon be available in the Tennessee Valley.

G-E Dealer's Sales In Tupelo Increase

TUPELO, Miss. — Woolley Electric Co., General Electric refrigerator dealer in this city of 6,000 which is headquarters of the Mississippi Valley division of the TVA and also the first town in which were demonstrated the low-priced TVA appliances, has quadrupled his business in the peak months this year over similar periods in 1933. Grove Woolley, proprietor, gives most of the credit to a G-E sales pilot kitchen coach which he operates.

For the month of May, Mr. Woolley's G-E appliance business amounted to $4,823 as compared to $1,168 in 1933. June sales totaled $5,327.82 as compared to $1,331 for the same period last year.

A surprising feature of Mr. Woolley's refrigerator sales is that 82 per cent of them have been 7 cu. ft. models. Average unit sale price of refrigerators sold this year by Mr. Woolley is $223.

When the Electric Home & Farm Authority opened its appliance exposition in Tupelo the Woolley Electric Co. installed a complete G-E kitchen exhibit for the show.

Mr. Woolley says that the sales pilot coach has made it possible for him to extend his operations by taking electrical appliances direct to the doors and prospects in remote and sparsely settled communities.

Westinghouse Brings Out 2 & 3 Hp. Units

(Concluded from Page 1, Column 3)

the same time, provide a definite air channel through the condenser or over the compressor and through the motor to remove all heat generated. The two-cylinder compressor is equipped with a positive oil separator attached to the cylinder head on the suction line.

Heavy glass, sealed in place on each side of the crank case, permit visual inspection of the oil level at all times.

The inlet oil line, from the oil in the base of the crank case, is equipped with two fine mesh screens to eliminate foreign particles from passing up the supply line to the spur gear oil pump. All moving parts are lubricated by a specially designed system in these compressors.

The suction and discharge valves are of the reed type, assembled in a steel cage located in the head of the compressor, to eliminate the possibility of fouling by foreign matter.

With the use of the oil pump, the oil separator, valves in the head, and the directed flow of air over the compressor, small bore and stroke in the two cylinders are possible, permitting higher speed of operation with balanced parts.

These units, as well as the previously announced 1 and 1½-hp. units, are equipped with an automatic reset, high pressure cutout for both air-cooled and water-cooled models.

Leonard Chest to Sell for $72.50

(Concluded from Page 1, Column 2)

removable basket for the accommodation of fruit, eggs, and vegetables; a white porcelain table top; a specially designed balloon door gasket, and a patented door check that eliminates hinge strain.

Standard Leonard mechanical equipment and Leonard-approved insulation are also used.

The cabinet is mounted on legs 2⅜ in. high that are equipped with gliders to prevent marring of floors. With the exception of the white porcelain table top, the exterior is finished in white lacquer on Bonderized steel. Interior is finished in white porcelain.

Georgia Power Sells TVA Models for $2.57 a Month

ATLANTA, Ga. — Individual and combination prices on TVA-emblem appliances sold by its merchandise divisions have recently been announced by the Georgia Power Co.

Following are the prices of the three appliances when purchased separately on the three-year Electric Home & Farm Authority payment basis: refrigerator (Kelvinator TVA model)—$79.75 with terms of $2.75 down and $2.57 per month; range (Hotpoint RA-134)—75.00 plus $3 for cord and plug with terms of $3.50 down and $2 51 per month; water heater (Hotpoint 430W49)—$60.50 with terms of $2.50 down and $2.31 per month.

If all three appliances are purchased at the same time, the total cash price amounts to $218.75. On the four-year EH&FA finance plan they can be purchased for a down-payment of $5.75, the balance payable at $5.43 a month.

Kelvinator Used in Stratosphere Camp

(Concluded from Page 1, Column 4)

in the dark room in the gondola house on the site of the balloon's take-off at Rapid City. Dr. Brien O'Brien, National Geographic Society representative, last week wrote Kelvinator officials to tell them of the service the refrigerator was rendering:

"The Kelvinator," the scientist's letter said, "is operating well under somewhat trying conditions. Difficulties arise from the fact that the power is supplied from an army gas engine generator set with very large voltage fluctuations due to overloads.

"As you no doubt understand, the special Eastman film for our ultra violet spectographs is so sensitive that it must be stored cool, and the processing after exposure has to be carried out at a temperature much lower than the air temperatures prevailing here. Your refrigerator is thus rendering an important service, since the study of the ultra violet spectrum of sunlight at high altitudes is one of the major objectives of the flight."

The spectograph referred to by Dr. O'Brien floated to earth on a special parachute. Pilot William Kepner, Photographer Albert W. Stevens and Captain O. A. Anderson saved themselves by leaping with their parachutes when the bag of the mammoth craft burst.

A. H. Baumgartner, Kelvinator dealer in Rapid City, installed the refrigerating equipment.

Winslow-Baker-Meyering Buy Trupar Mfg. Co.

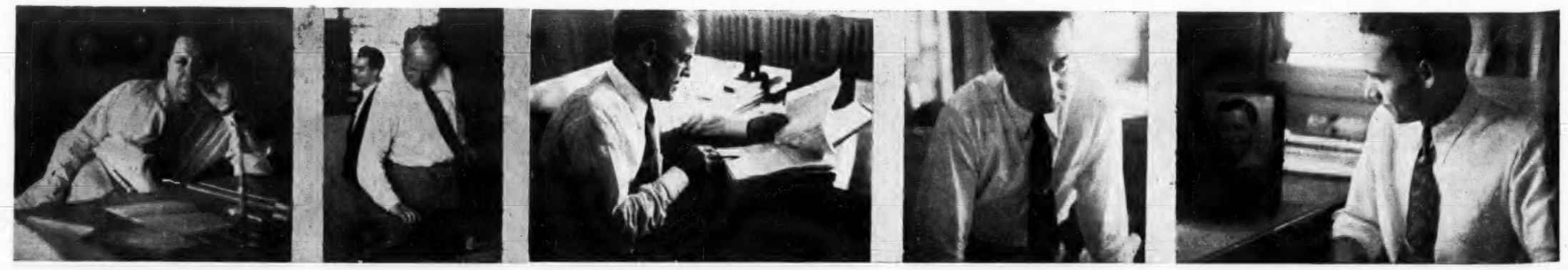
(Concluded from Page 1, Column 5)

ener division of Trupar Mfg. Co.'s activities was included in the purchase.

According to Mr. Winslow, plans are being made for the continuance of the manufacture and sale of the air conditioner which Trupar introduced last year.

The Trupar Mfg. Co. has been engaged in the manufacture of electric refrigeration equipment since 1927.

Kelvinator Executives on Plymouth Road Take Off Their Coats and Go After Summer Business



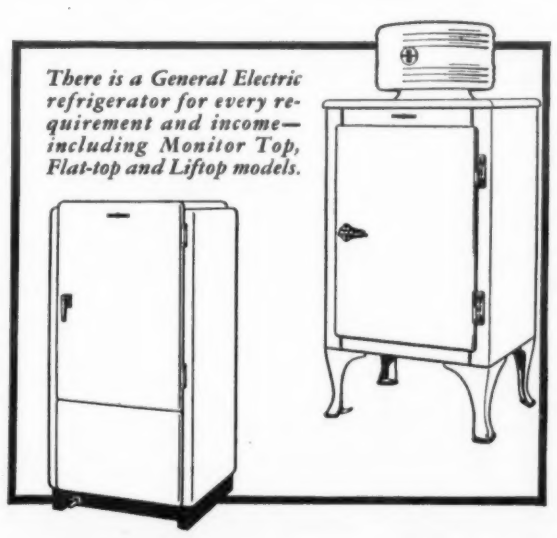
On a hot summer afternoon's visit to the Kelvinator factory, the candid cameraman caught the following Kelvinator executives unawares: (1) President George Mason ponders a weighty problem of corporation management; (2) Vice President Henry Burritt tests the finish of a desk; (3) C. W. Armstrong of ReDisCo. Kelvinator finance corporation, goes over the figures on outstanding time payment paper; (4) Walter Jeffries presents a proposition to Advertising Manager Vance Woodcox; (5) Mr. Woodcox studies a photo of one of his sons.

General Electric presents a revolutionary new refrigerator-range combination for the sensationally low price of $142.50 (plus freight). Now both electric refrigeration and electric cookery are available at a price previously paid for one!

FOR the first time in electric appliance history General Electric brings the convenience and economy of modern refrigeration and cookery *within reach of every wired home in America!*

Daring in conception, revolutionary in design, this amazing new combination electric refrigerator and range is as epoch making as the first G-E Monitor Top. *There is nothing else like it.* Again General Electric pioneers a great forward movement to popularize electric servants in *every* home.

75% of the potential market for electric refrigeration and cookery remains practically untouched. Now, with this revolutionary new low-priced refrigerator and range, you can put your finger on *three times* the amount of business you are now enjoying. Be the first in your locality to introduce this new G-E refrigerator and range. Write or wire for details of the General Electric franchise. Address General Electric Co., Specialty Appliance Sales Department, Section DF81, Nela Park, Cleveland, Ohio.



There is a General Electric refrigerator for every requirement and income—including Monitor Top, Flat-top and Liftop models.

The G-E Liftop Refrigerator

Lowest operating cost of any electric refrigerator in the world. Ample food storage capacity for the average family. Freezes 20 large cubes of ice at a time. Powered with the famous G-E sealed-in-steel mechanism—the same principle as in the world famed Monitor Top—and requires no attention, not even oiling. Price of refrigerator alone . . .

$77.50 plus freight

The G-E Companion Range

Ample capacity for a family of eight. Unique design and construction give unbelievable speed and low cost in operation. Three surface heating units and spacious oven (14 x 18 x 18) that readily accommodates a 15-lb. turkey. Price of range alone . . .

$72.00 plus freight

GENERAL ELECTRIC

COMMERCIAL REFRIGERATION

Experiments on College Farm Demonstrate Advantages of Modern Milk Coolers

AMHERST, Mass. — Experiments conducted by the Department of Dairy Industry of Massachusetts State College with farm milk-cooling equipment have demonstrated that electrically refrigerated milk coolers are reliable, economical, and convenient.

In summarizing the results of the tests, officials of the Department of Dairy Industry have the following to say:

"Electric cooling of milk is entirely practical. The machines we have tried are convenient, reliable, and if well adjusted, economical. We have no information as to the probable service cost and annual depreciation charge.

"Electric milk-cooling tanks are a distinct labor-saving device and we believe that within a comparatively few years nearly all dairymen will wish to be equipped with electric devices for cooling milk.

"They are more sanitary than natural ice."

Milk from the college herd has for several years been cooled in a specially constructed tank—the inside tank constructed of ¼-in. boiler plate painted with asphalt, backed with 3 in. of cork, painted with asphalt, and again backed with a 4-in. concrete wall on three sides. For the front side of the tank a boiler plate covering instead of concrete is used in order to lessen the width of the tank wall and thus make it easier to lift the cans in and out, without appreciably affecting the insulation efficiency.

The milk is run over a Champion cooler and placed in cans. These cans are then immersed to the neck in a tank until they are transported to the dairy building. The tank is refrigerated by an electrically operated unit. Milk is quickly cooled to 45° F. Bacteria counts, those in charge of the tests declare, have frequently been down as low as 1,000 per c.c. and the milk has reached the dairy in an excellent condition.

It was noted that with 1½ cans of milk in the evening and 1½ cans in the morning, the temperature was lowered from 90° F. to 50° F. in a period of about two hours. To do this required 2.5 kwh. electricity or 1.02 kwh. per cwt. The temperature of the room where this cooling was done was between 50° F. and 60° F.

Other electrically refrigerated milk coolers have been loaned to Massachusetts State College by Frigidaire Corp., Esco Cabinet Co., General Refrigeration Co., Kelvinator Corp., and Victor Products. These coolers were set up in a room where, as it happened, temperatures closely approximated summer temperatures. Carefully planned tests have been run with these various units.

Following are the results of tests run with the various cooling units to show kwh. used in cooling four cans of milk from 90° F. to 45° F. in 4-can tanks.

Tank A—3.9 kwh.
Tank B—4.75 kwh.
Tank C—3 kwh.
Tank D—4.8 kwh.
(Average 1.2 kwh. per 100 lbs. milk.)
Room temperature, average 75° F.

The above amount of current, in addition to cooling the cans of milk from 90° to 45° F., also maintained the proper temperature for cooling in the tank.

"It is difficult to get definite figures on comparative costs," the report on the tests state. "There is, of course, enormous shrinkage of ice stored in the average ice house and always the possibility of a shortage at a time when it is most needed.

"Some authorities estimate the necessity for putting up about 1 lb. of ice for each pound of milk to be cooled during the year. There is also great difference of opinion regarding the cost of building and maintaining ice houses and proper depreciations that should be charged to ice cost.

"Besides these, there is the hard work in connection with the ice harvest, the worst chore of the winter, and the disagreeable task of handling it in summer, at that season of the year when time is at a great premium.

"In regard to electricity, it must be said that in addition to the commercial charge of 1.08 kwh., account must be taken of the original investment in the electric cooling unit."

Following is a table giving comparisons on power consumption and ice consumption in cooling milk from the Massachusetts State College herd. For comparisons in dollars and cents, use prices for electricity and ice prevailing in your community.

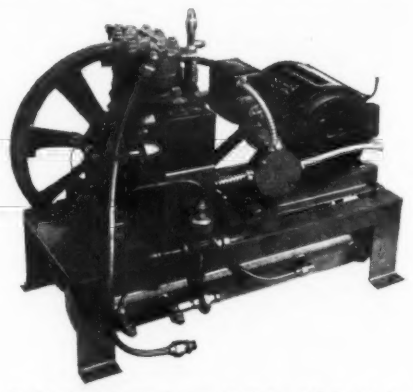
Comparison of Ice and Electricity in Cooling 4 Cans from 90° F. to 45° F.

Water Temp.	Lbs. Ice Melted	Room Temp.
40°	136.5	84°
Electricity	**Used in Cooling**	
Water Temp.	**Kwh.**	**Room Temp.**
40°	4.11	84°

ZEROZONE

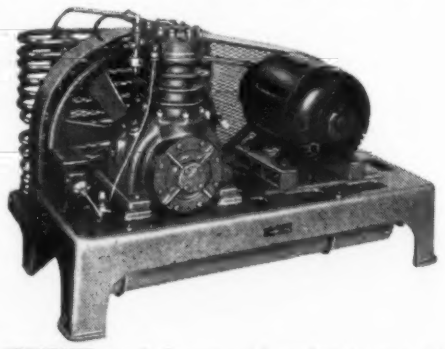
Commercial Refrigeration

FREE FROM OIL SLUGGING



Model SW-4375-IC, 2 cyl., ¾ H.P., I.M.E. 833 lbs. 30" long, 19½" deep, 25½" high.
Model SW-44100-IC, 2 cyl., 1 H.P., I.M.E. 1080 lbs. 30" long, 19½" deep, 25½" high.

Model SW-54200-IC, 2 cyl., 2 H.P., 2160 lbs. I.M.E. 30" long, 20½" deep, 27½" high.



ZEROZONE standard commercial condensing units fill every conventional need.

The "IC" ZEROZONE condensing units illustrated are designed for the ice-cream industry and other industries requiring low temperatures. They are unique for their ability to produce low freezing time.

ZEROZONE refrigeration is free from oil slugging, due to crank-case design. Quiet valve action is a feature of these units. Condensers are double tube type which insures maximum receiver capacity. Bearings are of bronze; bored, reamed, lapped and *oversized*. The eccentric drive makes ZEROZONE compressors highly efficient. Notice the compact appearance of ZEROZONE "IC" units which permits their installation in minimum space.

For applications having appreciable and sudden fluctuation from high to low temperature and vice-versa ZEROZONE units are definitely needed. They are built to extremely close limits for maximum efficiency.

ZEROZONE STANDARD CONDENSING UNITS

ZEROZONE condensing units are available in 15 standard sizes, with air or water-cooled condensers, powered with 1/6 to 3 H. P. motors, having I. M. E. capacities from 100 lbs. to 2,000 lbs. per 24 hours.

Construction of ZEROZONE condensing units guarantees long life in service and freedom from operative troubles. For more than 18 years these units have provided maximum satisfaction in every type of service.

Attention: Distributors

Franchises are now being written with reputable distributors who demand trouble-free, dependable products. Profitable business transactions follow the granting of a ZEROZONE franchise. Write for details *today*.

ZEROZONE REFRIGERATION CORPORATION

Division Winslow—Baker—Meyering Corp.

1315 Engineering Building, 205 W. Wacker Drive, Chicago, Ill.

Manager of Seeger N.Y. Branch Reports Increase in Business

By Elston D. Herron

NEW YORK CITY—More than at any time during the past four years, owners of delicatessens and meat stores now are evidencing an "equipment consciousness" strong enough to induce much actual buying and bring sales of commercial cases and refrigerators up to satisfactory volume, according to George McLeer, sales manager of Seeger Refrigerator Co.'s branch here.

The improved financial condition of many merchants has undoubtedly been responsible for a part of their step-up in purchases of such equipment this year, he says. Fully as important a factor, however, is the spick-and-span appearance of chain food stores, which is forcing independents to modernize to hold and attract customers.

New York Seeger's business in beer-cooling equipment has not been as active as last year, but the sales manager is pleased with the fact that manufacturers of fly-by-night coolers are apparently dropping out of the picture in considerable numbers.

City Places Order

The company recently received a $4,500 order from New York City's department of health, hospitals, and sanitation for 27 commercial refrigerators of various sizes to be used in its new building. General Electric condensing units, supplied by Rex Cole, Inc., New York G-E distributor, will be used.

To Suter's French Confections, Inc., in the Bronx, Seeger has sold a 71-cu. ft. storage refrigerator with a stainless steel lining and porcelain exterior, and a special stainless steel display case. G-E compressors will cool them.

For his delicatessen at 112 Tonnele Ave., Jersey City, Paul Spengler recently purchased a 12-ft. Seeger full-vision delicatessen case. Mr. McLeer calls attention to the fact that this case's length is greater than that of the average full-vision case.

The branch has also installed an 8-ft. double-duty delicatessen case, 15 ft. of counter, a porcelain fruit stand, and a porcelain butter box in the Parc Vendome Delicatessen on West 57th St. in New York City. Cooling is supplied by a Frigidaire unit.

At the Crown Delicatessen, 82nd St. and Madison Ave., Seeger installed an 8-ft. full-vision display case and 16 ft. of counter. Frigidaire sold the compressor for the case.

Equipment for LaHiff's

One of the branch's biggest sales this season was made to LaHiff's Tavern, a restaurant at 156 West 48th St. which caters to celebrities in theatrical life, motion pictures, and the sporting world. A total of 300 cu. ft. of restaurant boxes were sold, including two chef's short-order refrigerators with total capacity of 112 cu. ft., a 68-cu. ft. seafood refrigerator with Chilspray attachment, and a 140-cu. ft. meat storage refrigerator equipped with a Frigidaire "Kool-Whirl" system. The restaurant has Frigidaire air conditioning, and Frigidaire units cool all the new refrigerators.

The P-681 cabinet for fish is equipped with a nest of drawers in the long door compartment, and Forman's Chilspray arrangement in the four half-height door compartments. The Chilspray device is operated by an electrically controlled valve. The clock is set to turn on the valve every three hours, and water is chilled in a series of coils fastened to the back wall.

The new equipment replaced a battery of antiquated commercial refrigerators and an old ammonia refrigerating system.

Last year, the Seeger branch placed a 10-ft. double-duty butcher case and two porcelain scale stands in a New York City meat market owned by Paul Halder. This year, the proprietor has further modernized his store by having Seeger cover his walk-in cooler with porcelain, install a porcelain backbar, and put chromium railing at several points in the room.

A 10-ft. double-duty delicatessen case has just been installed in the Eatmore Delicatessen at 87th St. and Third Ave. A similar case has been placed in the Zigmond Delicatessen, Port Washington, L. I.

At the Home for Hebrew Infants, 110 West Kingsbridge Road, Bronx, the branch has just installed a 7x3x7½-ft. special service refrigerator with stainless steel lining and porcelain exterior. It is equipped with a General Electric unit.

Using ice for cooling, a 20-ft. all-steel bar is being installed in the Emil Canova Cafe at 262 Summit Ave., Jersey City. There are four draft arms for beer, and one for water. The proprietor also purchased a pre-cooler, using ice, with a storage capacity of nine half-barrels.

When the branch is called upon to do repair work on any of its porcelain-finished cabinets, parts of the latter needing much refinishing are returned to the factory in St. Paul. For small refinishing or hurry-up jobs on porcelain equipment, the work is sent to the Sani-Porcelain Enamel Products Co., Inc., in Brooklyn.

Most of the concern's lacquer-refinishing work is done by the Yellow Cab Co. of New York City, which, according to Mr. McLeer, has a special department for refrigerator finishing (lacquer), and does work of good quality.

Back & Bar

Vivian Zweigoron, winner of a "perfect back" contest, poses with a Temprite beer-cooling unit installed on a Brunswick-Balke-Collender bar.

York Branches Use 'Visual' Sales Plan

YORK, Pa.—A plan of visual selling, giving equal consideration to commercial refrigeration and air conditioning, has been inaugurated in sales branches of York Ice Machinery Corp. located in cities throughout the South by W. E. Becker, southern regional manager for York.

The New Orleans office, like the branch offices at Houston, Tex., and Atlanta, is housed in a modern building, which has been so designed to allow ample floor space for York refrigerating units and air-conditioning equipment.

The display is so arranged that these various units may be seen in actual operation, under conditions which duplicate as closely as possible those in homes, apartments, offices, or workrooms where this equipment is designed to be installed.

Back of the sales display room are placed, in orderly arrangement for prompt access when needed, a complete assortment of fittings, stock parts, and supplies, occupying the balance of the warehouse space.

Air conditioning is sold visually, not in terms of apparatus or equipment, but in terms of personal comfort, by making it possible for the prospect to feel the effect of controlled temperature, of air that is washed, filtered, and gently circulated.

At night the entire display front of the New Orleans office is flood lighted. Six flood lights are connected with an automatic time clock mechanism, which turns the lights on about 6 p. m. and automatically turns them off at 11:30 p. m., after theater hours.

Folder Gives Specifications of Temprite Coolers

DETROIT—"For Better Beer Cooling—Temprite" is the title of a new promotion folder recently brought out by Temprite Products Corp., manufacturer of instantaneous beverage coolers. The folder is intended for use by Temprite distributors.

The folder is the work of Gordon Muir, Temprite's advertising manager.

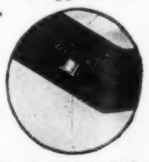
Various Temprite models are illustrated, with key specifications and capacities given for each model.

ACE HARD RUBBER

Roller Bearing
REFRIGERATOR DOORS

of the center rail, groove type are supplied with roller bearings at a slight extra cost.

• • •



A wide range of standard sizes and styles of Ace hard rubber doors, door frames are available. Also, slide rails, jambs, trim, glazing strips, etc. Catalogue and prices available on request.

AMERICAN HARD RUBBER COMPANY
11 MERCER STREET, NEW YORK, N. Y.
Akron, Ohio — 111 West Washington St., Chicago, Ill.

Talking to Commercial Prospects IN THEIR OWN LANGUAGE

Your Customers Don't Say "GIVE ME A MEAL!"
YOU GIVE THEM EXACT SELECTION
—AND THAT'S WHAT YOU SHOULD GET WHEN YOU BUY ELECTRIC REFRIGERATION
Kelvinator

Kelvinator dealers ALONE have this to OFFER!

IN LEADING Trade Journals in practically every field in which electric refrigeration is used, the Kelvinator story of **EXACT SELECTION** is being told and retold to the thousands of prospects for commercial refrigeration.

Without a doubt, it is the strongest, the most convincing sales story in the industry, because it permits the dealer to talk to the prospect in his own language—in terms of what the prospect SHOULD HAVE to do his particular job, instead of what the dealer has to *sell*.

Over a long period of years, Kelvinator has been adding new types and sizes of equipment. To-day, the Kelvinator line of condensing and cooling units is the most complete in the industry. There is Kelvinator equipment for *every type* of commercial installation—*exactly* the correct equipment for every job.

Kelvinator dealers *alone* enjoy the sales and profit advantages of this complete line and the Kelvinator System of **EXACT SELECTION.** KELVINATOR CORPORATION, *14250 Plymouth Road, Detroit, Michigan. Factories also in London, Ontario, and London, England.*

NRA CODE

(921)

Kelvinator

Sales Director Says Dealers Kid Themselves in Summertime

By John H. Knapp
Vice President and Director of Sales Norge Corp., Detroit

NOTHING fascinates me more than to read the many experience letters which pour in daily from refrigeration dealers the country over. A running analysis of these has taught me that dealer success springs, largely, from a right state of mind.

The majority of dealers have imagination, intelligence and courage. They challenge traditions, recognize the value of sales support, get enthusiastically behind any real program that will give them added volume. And they win.

Doesn't Try to Sell

A few, however, throw up alibis, barriers and excuses. I heard of a dealer the other day who, at the seventh inning stretch, remarked, "it's useless to try and sell electric refrigerators during July and August."

Another, up in Northern Wisconsin, as he angled a dry fly into a deep pool along the river bank, said, "No use trying to work, you can't sell during summer." Both are trying to kid themselves that the pleasures of a ball game and trout stream are results of a poor selling season when, in fact, they are its very cause.

The one reason why an electric refrigeration dealer can't sell during August is because he doesn't try.

What Dealers Say

Take just two of the 81 letters I received from dealers today—and they are by no means exceptional. John J. Good, Norge dealer at Holland, Mich., writes, "During the first six months of this year our sales are 271 per cent greater than our entire sales last year. A comparison of sales thus far in 1934, shows that we have sold more than all other dealers combined. Most dealers feel that when July and August roll round, the refrigeration season is over. But we know that they can be sold every day in the year. We have a real product to sell, a real selling organization and we really go out and ring door bells."

Here is another letter from Edward J. Leary, Norge dealer at Danbury, Conn., who sells savings, not price. In the last 12 sales, he reported a total of 77.7 cu. ft. of net Norge storage space was sold to 41 family members, an average of 1.8 cu. ft. per person. The average size was 6.4 cu. ft.; the average net sale was $221.

Leary has learned not only to avoid the error of selling down but of believing in a summer slump. He writes, "Our summer business will be twice as good as our early spring sales. In fact, summer slump has no bugaboos for us. There isn't going to be any."

These letters are typical of hundreds I have received in the past month, all of which prove convincingly that dealer success depends upon a *right state of mind.* If a man is too lazy to plan and to work, he can always find an excuse to go fishing, to take a vacation or to see the league-leaders play baseball. But you can't sell electric refrigerators on a trout stream or in a ball park during August.

Sell Product When Needed

It is self-evident that it is easiest to sell electric refrigeration during that time when its use values are most needed and appreciated. That month is, most certainly, August. That is true from any angle you look at it.

All over the country, we had unprecedented hot weather in July. The thermometer will dance in the high 90's many days in August. Everyone knows that yeast, mold and particularly bacteria multiply more rapidly as the temperature gets farther past the critical temperature point of 50 degrees. Therefore, food spoils faster and health is more endangered during the hot summer months, lacking electric refrigeration, than any other time of year.

Demand Lighter Foods

Family taste swings from heavier to lighter foods during sultry days, the consumption of green vegetables, fruits, beverages, and milk increases. It has been estimated that refrigerator storage requirements double during July and August because of this shift in taste to perishables.

Obviously, electric refrigeration is indispensable during August; not only to prevent food spoilage when there is apt to be much more of it but, as well, to save what is otherwise wasted. The money savings from electric refrigerator ownership reach the point of a major consideration during August.

There are many other reasons which all of us know well. August, for example, is a month of high humidity in most locations. The atmosphere is saturated so full of moisture that the air fails to evaporate perspiration and about the only way we can cool off is to get something cold inside. Thus a supply of ice cubes is necessary.

Nor does a homemaker enjoy frequent trips to the store, during sultry weather and the majority of these can be avoided when owning an electric refrigerator. Further, the nature of family eating in August results in more quickly perishable left-overs which must be thrown out fast unless conserved by electric refrigeration. No woman enjoys standing over a hot kitchen range when the thermometer shoves its nose towards the ceiling. But this strain and fatigue is necessary unless an electric refrigerator is owned, making it possible to prepare cold cooked meals in the early morning hours.

Fail to Emphasize Use

All of these points are facts, recognized by everyone, which weld together into the richest fund of selling argument for electric refrigeration of any time of year. When the benefits, convenience and savings are greatest, electric refrigeration can certainly be sold easiest. Trouble is, I think, that the few dealers who have a summer sales slump are either not selling in the right way, lack proper sales support or are burdened with the hookworm.

Some dealers, long accustomed to sell only from the angle of what an electric refrigerator is, fail to emphasize its use values. Their prospects have no vivid appreciation of its many extra summer benefits, compared with ice. Successful selling rests upon an educational impulse rather than upon high-pressure emphasis upon product features alone.

Some manufacturers shut off the supply of dealer sales help during the summer season, permitting the dealer to drift unsupported. When he sees that the company he represents is slowing its momentum, what is more natural than for him to do likewise.

Want to Play in Summer

Then, too, there are always a few dealers who seize any excuse to play during summer. Their trouble is that they do not recognize the tremendous social responsibility which their business automatically imposes.

If the need and risk are greater during August, certainly the obligation to serve the public by selling it electric refrigeration is greater. When a dealer fails to use intense summer selling effort, he is cheating the public of benefits it might have enjoyed, had he attempted to reach and convince the greatest number of prospects.

Remember this: there is no greater service that can be rendered than to induce a family into the happy benefits of electric refrigeration. We spend too much time thinking of our profits, earnings, commissions and what we are going to get.

We should realize that an electric refrigerator gives much more than it costs; that its sale is a service from which the customer gains more than she pays and that we have an obligation to educate her as to its vital necessity.

It is good business to keep fully active in rendering this summer selling service and as we perform, profits are the automatic reward. In any line of endeavor, one must give in order to get.

In electric refrigeration, during August, the greater chance to give in spectacular benefits automatically makes it possible to gain greater volume and earnings.

Norge Helps Dealers

It is because of these facts that the Norge Corp. has elected to smash another tradition which has retarded industrial sales during the summer period entirely too much.

We have organized Cold Cookery carnival activities to attract neighborhood patronage into dealers' stores which might not otherwise come, preferring to remain in the cool of the porch unless some powerful inducement is made.

We have introduced a limited edition of a Norge "Mystery" model, in an exclusive spectacular new finish, to pull greater crowds into the store and to effect neighborhood promotion through mailings and parades with the object of getting maximum traffic in before using the greater effort of going out direct to the home.

Finally, we have developed a Friendship Drive by means of which, through helpful service to Norge owners, we secure their sales help in extending outside selling operations throughout each neighborhood on a basis that avoids "Cold Turkey" canvass and brings potent sales influence to bear on each prospect.

Knapp Rounds Up Idlers

"Two-Gun Johnny" Knapp, who directs Norge sales, is gunning for dealers who shut up shop in August to go fishing.

Leonard Sales Increase With Advertising

DETROIT—A close relationship between Leonard Refrigerator Co.'s increase in advertising expenditures and its increase in sales is reported by Sam C. Mitchell, advertising manager.

For 1933-34, Leonard increased its newspaper advertising appropriation 50 per cent over the preceding fiscal year, Mr. Mitchell stated. On June 30, which concluded the first three quarters of the company's current fiscal year, unit shipments of Leonard refrigerators reached a figure 57 per cent above the sales quota set on October 1, 1933.

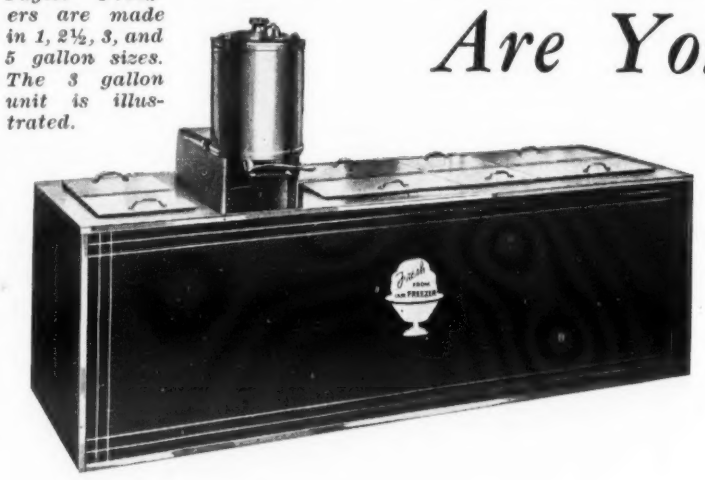
By the last week in May, with more than four months of its present fiscal year still remaining, Leonard had shipped more refrigerators than the company had sold during the entire preceding year.

Electrolux Dealer Sells 45 Units in May

SPRING VALLEY, Ill.—Forty-five kerosene-operated Electrolux refrigerators sold and installed during May of this year is the sales record set by Herman Rinkenberger here.

Mr. Rinkenberger's system is to load an Electrolux kerosene-operated refrigerator on his truck and take it to his farmer prospect, with whom he leaves it for a three or four-day trial demonstration. More than 90 per cent of these demonstrations result in sales.

Taylor Freezers are made in 1, 2½, 3, and 5 gallon sizes. The 3 gallon unit is illustrated.



Are You MISSING OUT ON the SECOND PROFIT?

Each Taylor Freezer installation requires an ice machine. It follows then, that refrigerator dealers selling Taylor freezers make TWO PROFITS—one on the Taylor freezer, and another on the ice machine.

Why pass up the EXTRA PROFIT? If you sell ice machines, Taylor freezers will prove a profitable auxiliary line. The field for counter freezers is of immense proportion. There are thousands of prospects in your vicinity. Alert dealers will investigate this line of quality counter freezers now. Write or wire us for full information.

Taylor is the pioneer and peer of counter freezers. Quality is outstanding in this line. Every store and institution serving ice cream is a prospect. The field is practically unlimited.

TAYLOR FREEZER CORP.

"WORLD'S FINEST ICE CREAM EQUIPMENT"

BELOIT, WISCONSIN

TF QUALITY WINS YOU!

McCORD REFRIGERATION PRODUCTS

COMMERCIAL EVAPORATORS

DOMESTIC EVAPORATORS

CONDENSERS

METLFLEX ICE TRAYS

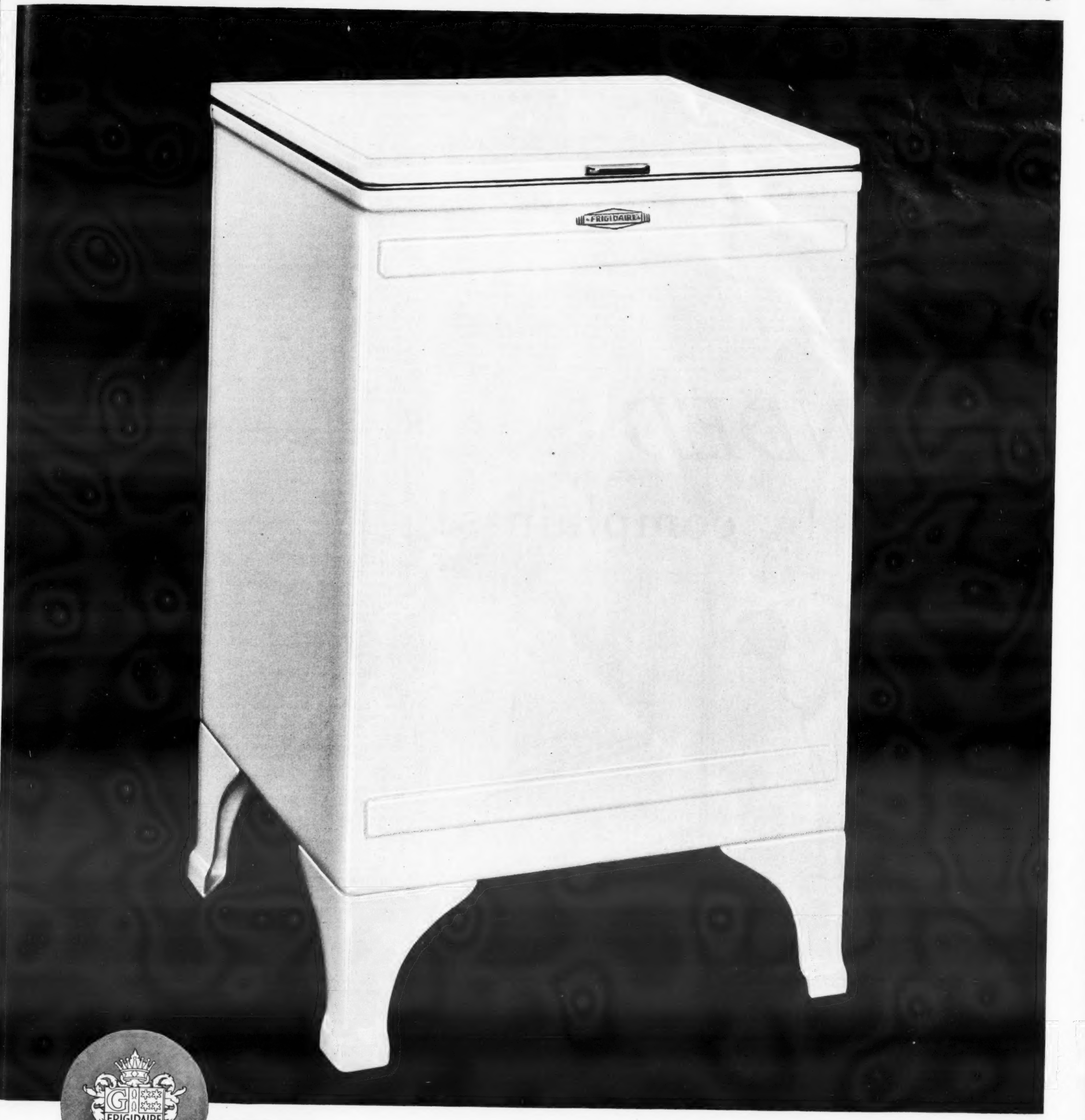
SPIRAL FINNED TUBING

SPIRAL COPPER FINNED IRON, STEEL OR COPPER PIPE

McCORD RADIATOR & MFG. CO.
DETROIT. -:- MICH.

Koldchest $77.50

Plus Freight



AND IT'S MADE BY

Frigidaire

AIR CONDITIONING

Sanford Tells How Refrigerating Units May Be Used for Heating

By Sterling S. Sanford, Sales Department, Detroit Edison Co.

DO you know that refrigeration can be used for heating as well as for cooling; and do you know that when we heat in this way, we can get from two to five times as much heat per kilowatt-hour used as when we heat directly with electricity? Some day you may actually *heat* your home with refrigeration. It is, of course, impossible to get more than 3,413 British thermal units out of a kilowatt-hour, but electrical energy can be used for moving a larger quantity of heat from one place to another.

All a refrigeration system really does is to pick up heat in one place and deliver it somewhere else at a higher temperature. The usual arrangement is that heat is picked up from some place which we want to cool, such as the inside of a refrigerator, and delivered somewhere else where it doesn't matter, such as to the air in the kitchen.

If the refrigeration system picks up heat from some place which we are not trying to cool, such as out-of-doors, and delivers it indoors for the purpose of heating, we refer to the process as the reversed cycle of refrigeration. Actually the refrigeration system operates in the same way whether the purpose is cooling or heating.

The compression system of refrigeration, which is the system in most common use and the one used in all electric refrigerators, consists essentially of an evaporator coil, a compressor, a condenser, and the connecting tubing.

The refrigerant in the evaporator coil absorbs heat from the air or whatever other material surrounds the coil, and the compressor pumps the refrigerant with its load of heat through the compressor to the condenser where the heat is removed from the system by air or water in contact with the condenser coils. Heat is carried away by air or water, depending upon whether the condenser is air or water cooled.

The compressor does two things; it circulates the refrigerant through the system conveying the heat from the evaporator to the condenser, and it raises the temperature level of the heat; that is, a quantity of heat absorbed by the evaporator from a place at one temperature is discharged from the condenser at a considerably higher temperature, just as water is pumped from one level to a higher level.

If we put the evaporator coil of our refrigeration system out-of-doors and the condenser coil indoors, we can then pump heat from the outdoor air into the house and heat our house in this way.

Of course you may say that when it is cold outside and we need heat in the house, there isn't any heat outdoors to pump in, but it must be remembered that no matter how cold the weather may be, there is always a large amount of heat available in outdoor air, for even when our thermometer reads zero, it is 460° F. above the real or absolute zero.

Well-water is another possible source of heat. The temperature of well-water in this locality is about 50° F., and where a sufficient supply of water can be obtained, the evaporator coil could be placed in the water and heat from the water pumped into the house by a refrigeration compressor.

Even though we can supply more heat per kilowatt-hour in this way than by using electricity directly for heating, we could not justify the installation of a refrigeration system for the sole purpose of heating.

However, if one is considering the installation of a cooling system in his home, the investment can be more easily justified if the system can be arranged so that it can be used for heating during the spring and fall months when it may be inconvenient to operate the furnace.

In colder weather the amount of heat which can be pumped into the house per kilowatt-hour is much smaller than in spring or fall, and as the weather gets colder the amount of heat per kilowatt-hour becomes smaller and smaller so that it is not advisable to heat in this way in very cold weather.

If one were building a home with the idea of having it air conditioned, he would probably install a warm-air heating system with a blower in it for circulating the air. Cooling in the summer would be accomplished by installing a refrigeration compressor in the basement with its evaporator coil in the air duct.

Ordinarily a water-cooled condenser would be used, but if the refrigeration system were to be used also for heating, the condenser coil would be air cooled and would be placed out-of-doors.

By having the proper valves and connections between the refrigerant piping leading to the indoor and outdoor coils, the refrigerant could be circulated in either direction by opening two valves and closing two others.

Air-conditioning equipment for cooling in summer and heating at other times by means of the reversed cycle is already on the market. In this equipment, all parts, including the compressor, the two heat-exchanging coils, and two fans, are located inside the cabinet.

The cabinet is usually installed under a window and must have an outdoor air connection to it. Outdoor air is taken into one side of the cabinet and discharged out-of-doors again through the other side.

How Change is Made

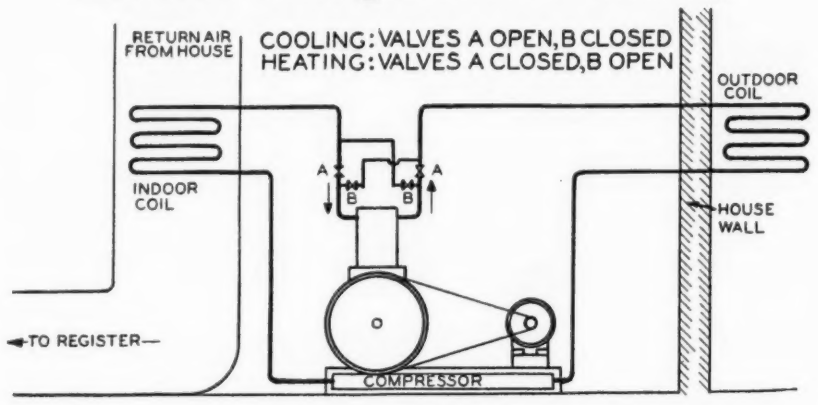
When used for cooling, the outdoor air carries away the heat which the cabinet has removed from the room, and when used for heating, the outdoor air supplies the heat which the cabinet delivers to the room. The change from cooling to heating is made simply by turning a handle which operates the valves.

Houses in other cities have been heated experimentally with refrigerating equipment at temperatures as low as 14° F. At higher outdoor temperatures the amount of heat delivered to a house has been reported as high as five times the equivalent of the electricity used by the motor-driven compressor.

In Los Angeles, the office building of the Southern California Edison Co., Ltd., is partly heated with the refrigeration equipment used for cooling in summer. Results of the first winter's operation indicated that the system could deliver to the building more than twice as much heat as the electrical equivalent of the power used by the compressor, pumps, and fans.

Cooling equipment which would otherwise stand idle except during hot weather can be operated for heating during other parts of the year and at a cost of only one-half to one-fifth that of electric heating. Surely a system which delivers the heat equivalent of five-kilowatt hours for every kilowatt-hour used, is not to be overlooked.

Reverse Refrigeration Hook-Up



Refrigeration system reversible for heating. To heat, the valves would be set to pump heat from the outdoor coil and discharge it indoors.

Kramer Manifolds Large Unit Coolers

TRENTON, N. J.—Manifolding of the larger models of unit coolers built by Trenton Auto Radiator Works has just been announced by engineers of that firm. This change has been made to accommodate Freon in the coolers, and for greater than 20° F. temperature difference air to refrigerant, and its application to commercial comfort cooling installations as well as for process cooling.

The Kramer unit cooler is manufactured entirely of non-corrosive materials, the coil being of all copper construction with a hot tin dip finish, and the housing of all-brass construction.

Notes

By John T. Schaefer

Bibliography

Every once in a while somebody produces a good bibliography. This summer Uncle Sam produced a good one on air conditioning. It is entitled "A bibliography of Information on Air Conditioning," and is available at no cost from the Bureau of Foreign and Domestic Commerce at Washington, D. C.

If you're a student of the subject, you ought to get one. It lists all the current periodicals treating air conditioning, and under each gives titles of articles, page number, and date of issue of pertinent references. ELECTRIC REFRIGERATION NEWS, incidentally, is well represented.

* * *

Typewriters

Shaw-Walker Co., large manufacturer of office furniture, has discovered that typewriters need not be covered in dustless air-conditioned offices, and has brought out two new typewriter desks without wells, accommodating machines with any width of carriage, eliminating noise and vibration of some drop-head desks.

* * *

Throat Cure?

A robust, deep-voiced fellow is Homer D. Herron, father of REFRIGERATION NEWS Writer Elston Herron. But several weeks ago something cracked in his throat, and since then he has rarely been able to speak above a whisper. Five throat specialists have studied the problem, muttered many syllabled medical terms, and did no good.

Coming through Detroit the other day he stopped off for a brief visit with his son. They had dinner together in an air-conditioned restaurant. Within a few minutes after they entered, much to the amazement and delight of both, the elder Herron began to regain his normal voice. During the course of the dinner, *his voice did come back,* and until they left the restaurant, he was his old self.

Coming from a small Southern Illinois town, he had never before been in an air-conditioned room. The only other occasions on which his voice has even approached normalcy since his trouble was when he was close to a body of water, he says. Any explanations?

* * *

Handwriting on the Wall

Along with "restaurants that neglect fly prevention," etc., etc. *Hotel Management* Magazine nominates for the "Suicide Club," *"hotel operators who do not see the air conditioning handwriting on the wall."*

* * *

In the Laboratory

Working quietly back in the laboratory of Chrysler Motor's huge engineering department which produced the new Chrysler air conditioner (described in last week's issue of the NEWS) are two old-time refrigerating engineers—injecting refrigeration experience into the air-conditioning research program.

One is Lester Keilholtz, one-time head of Frigidaire engineering, and more recently consulting engineer for Norge, Air Controls, Montgomery-Ward.

The other is James R. McCallum, recently with Universal Cooler, and previously with the Climax Engineering Co. out in Clinton, Ia. It was Mr. McCallum who fathered the Climax household refrigeration unit when it was brought over to the Universal Cooler laboratory.

Both are assisting A. C. Staley, commercial engineer in charge of air-conditioning engineering for Chrysler. To Mr. Staley generally goes the credit for developing a number of non-automotive products, such as air compressors, which the Chrysler organization has started to market within the last few years.

* * *

Studies

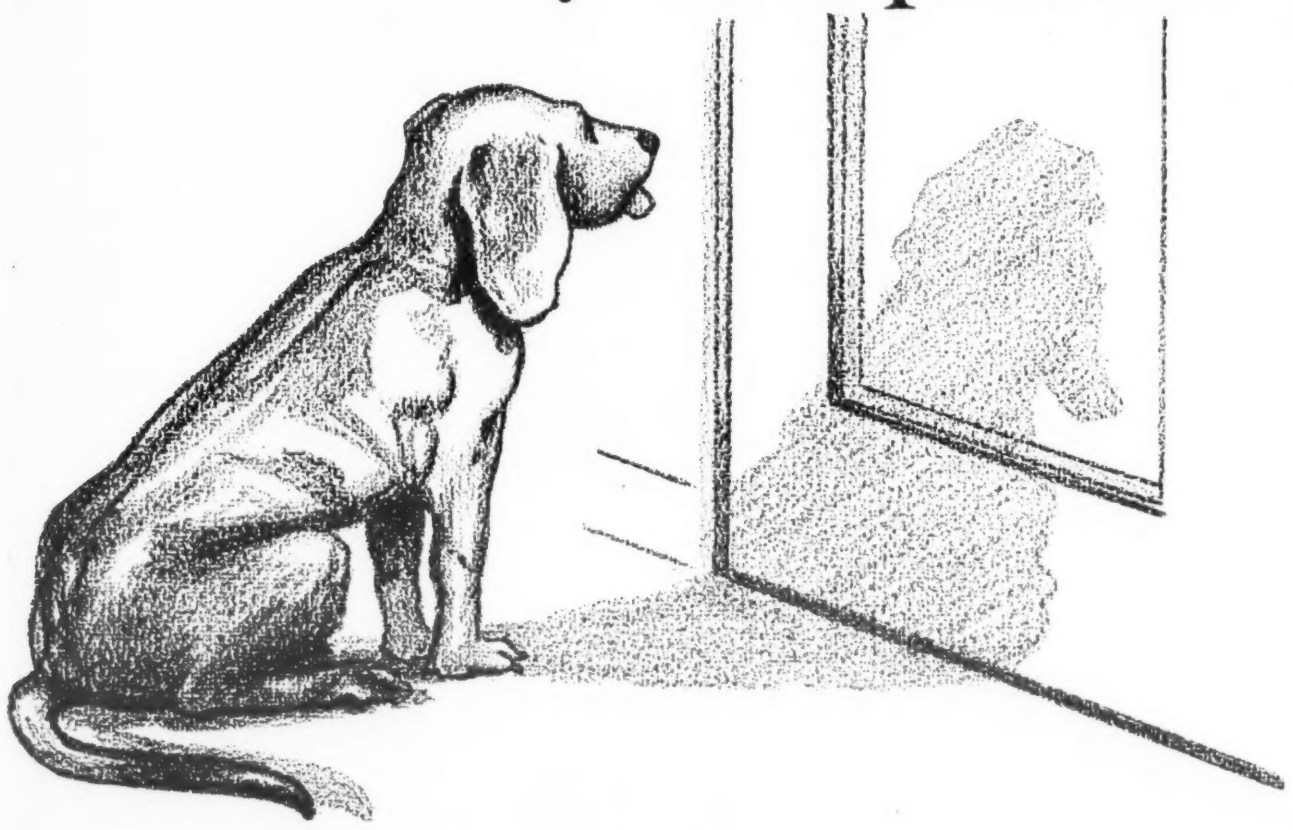
Does office building air conditioning pay? The Philadelphia Electric Co. set out to find their own answer to this question from a survey of two identical office spaces; one was air conditioned, the other was not. Just completed, the tests lasted two years.

Conclusions: Lost time of workers due to respiratory illnesses was reduced an average of 45.4 per cent in the conditioned space, representing a decrease of 2.38 days per person, or an amount estimated at $11.90 per employee per year. "This amount," Philadelphia Electric's report states, "would justify an investment in air conditioning of $61.97 per employee."

"In addition to these economies," says the report, "improved efficiency was noticed." Experimental data indicated that the increase in efficiency was about 4 per cent. The owning and operating cost of air conditioning was approximately 0.5 per cent of the payroll.

"Therefore," says the report, "we believe this increased efficiency of the workers to be of even greater importance than the reduction of lost time."

HOUNDED by complaints!



The trail of complaints about insulation ends at the door of the refrigerator manufacturer

BUT *that*, unfortunately, is just the beginning of the sad story of insulation that fails. For there's always the strong possibility of losing profitable dealer connections through such complaints.

By standardizing on rigid Armstrong's Temlok for your cabinets, you eliminate any chance of customer-to-dealer-to-you complaints about faulty insulation. This durable fibreboard has a high resistance to moisture and efficient insulating value. Temlok is light in weight, odorless, strong . . . can't settle or pack. For your convenience, Temlok is supplied in factory fabricated sets, ready for time-saving installation.

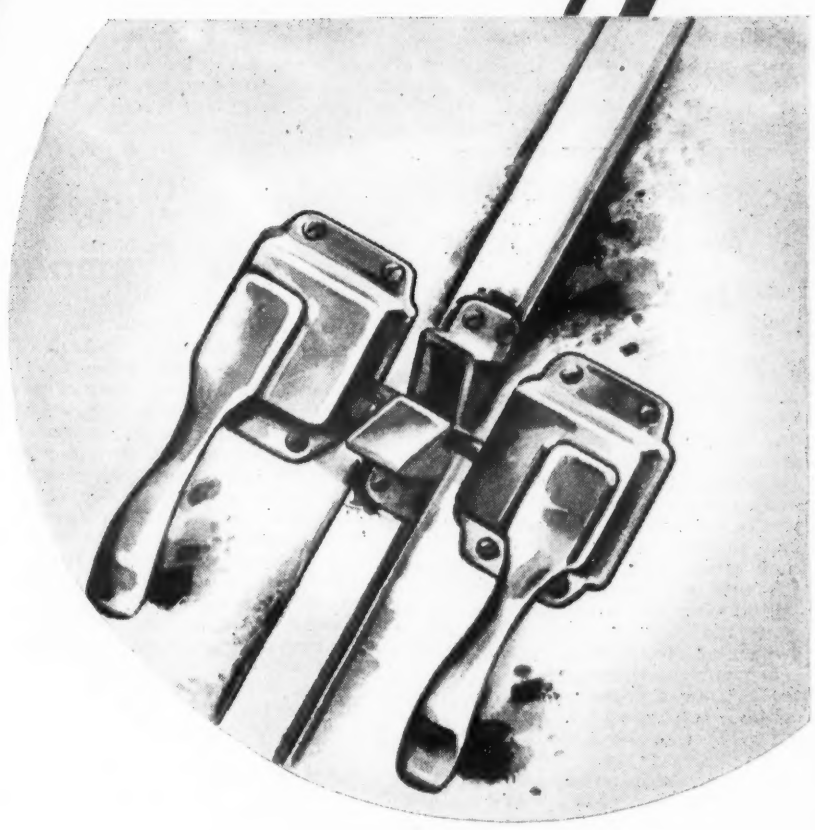
It will pay you to investigate Temlok before placing your next order for insulation. Just write us for complete details. Armstrong Cork & Insulation Co., 917 Concord St., Lancaster, Pa.

Armstrong's TEMLOK

REFRIGERATOR INSULATION

THERE CAN BE NO COMPROMISE WITH

Quality



PORCELAIN ENAMEL NEVER GETS "ICE-BOX ECZEMA" . . .

● *Practically all refrigerators have porcelain enamel interiors. Because nothing else known will stand up.*

Obviously what is good for the inside is good for the outside. In spite of hard usage the inside never acquires "ice-box eczema." . . . . That is because it is porcelain enamel.

Indeed—what is good for the inside is even better for the outside because all the eye-appeal, all the pride of ownership, is on the outside.

Be certain your floor men stress the life-time beauty of porcelain enamel. *That* is the customer-satisfying, high-profit box.

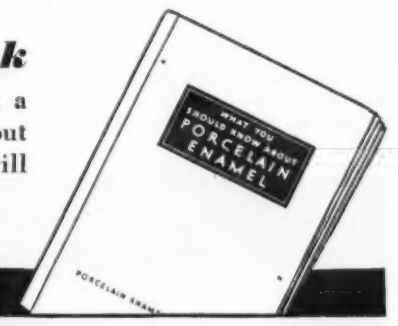
Ordinary organic finishes are soft. That's why they get "ice-box eczema." You can scratch them with your finger nail—belt buckle—pencil point—or pan handle. Wipe them with an ordinary rubber eraser and you have dulled the lustrous finish forever. A "live" cigarette will stain them permanently.

But with porcelain enamel none of these things will affect the life-time lustre, the lasting beauty, of that flint-hard, *inorganic* finish.

People remember where they buy refrigerators. The purchase is infrequent, and for the most part represents quite an outlay of money. So they want it to last a long time. They want it to be a thing of beauty. . . . . Who can blame them for being dissatisfied if their refrigerator presently acquires "ice-box eczema" (a disease common to organic finishes).

. . . . . *Write for Book*

Give your salesmen the selling value of facts. Get a copy of the book "What You Should Know About Porcelain Enamel" and have them read it. It will help them to bigger profits—happier customers.



EDUCATIONAL BUREAU
CLEARING HOUSE FOR SALES AND TECHNICAL INFORMATION
PORCELAIN ENAMEL INSTITUTE, INC.
612 NORTH MICHIGAN AVENUE • CHICAGO

PORCELAIN ENAMEL *THE Lifetime Finish*

Porcelain Enamel Institute, Inc.
612 North Michigan Ave.
Chicago.

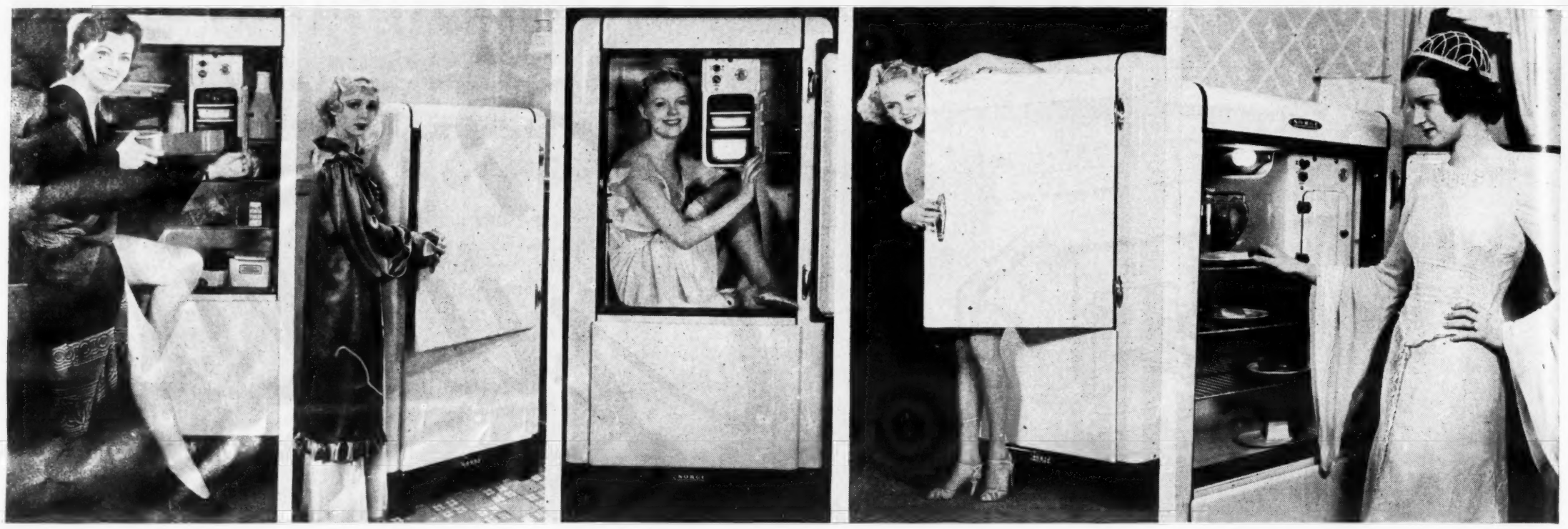
Send me a copy of your 24-page book "What You Should Know About Porcelain Enamel." No obligation, of course.

Name .....

Address .....

Town and State .....

Norge Goes Hollywood—Putting a Severe Strain on the Cold-Producing Rollator



Jim Sterling, amiable and highly presentable sales promotion manager of Norge Corp., went to Hollywood recently to arrange some Norge movie tie-ups. When he came back he brought with him these pictures—which contain five of the six known methods of posing a pretty girl with a refrigerator (sixth method: on top the box, with lots of silk stocking). If the movie clean-up drive now in progress succeeds, these pictures may some day become a collector's item—as the last known photographs of Hollywood legs. Left to right: GiGi Parrish, 1934 Wampus Baby Star (note that she has arranged the food in her refrigerator all wrong); Isabel Jewell, Verna Hillie, Detroit product; Betty McMann, and Elizabeth Young.

Parade Announces Arrival of Units In Tuscaloosa

TUSCALOOSA, Ala. — When Sokol Bros. Furniture Co., local Norge dealer received its first carload shipment of Norge refrigerators recently, the event was celebrated with a parade.

Heading the Sokol Norge parade was a 50 piece band. Then came 12 trucks with the boxed refrigerators—just as they came out of the car—each truck with an appropriate banner with a different Norge slogan.

Following the band and the trucks were the private cars of 49 Norge owners, each carrying a banner on either side of the engine hood, which read: "I am a proud owner of a Norge rollator refrigerator."

Twelve cars with Sokol executives and salesmen followed. Trailing these were two decorated trucks. One was loaded with two model P-67's, back to back. Six girls were grouped around them, and a banner read: "A beauty surrounded with beauty."

The other truck carried a coffin and the banner: "He was a Norge service man. For lack of work he died of starvation."

ANSUL

SULPHUR DIOXIDE

METHYL CHLORIDE

✓Dry
✓Clean
✓Pure

Need anything more be said except that the high quality of Ansul Refrigerants is guaranteed by an individual analysis of each cylinder.

ANSUL CHEMICAL CO.
MARINETTE - WISCONSIN

Norge Stages 5 Contests & Releases New Promotion for Summer Drive

DETROIT — Eleven sales winning activities, five sales contests, special campaign advertising in 1,500 newspapers and an abundance of new promotional materials comprise the main factors in the Norge summer sales drive, which opened last month.

Norge wholesale and retail salesmen will compete for $50,000 in merchandise prizes, Norge owners for $2,500 national and many local prizes for testimonial letters, Norge prospects for 106 national awards and many local awards in a best cold cookery recipes contest, and Norge dealers for $2,500 in a window display contest.

The entire program was introduced in a series of 47 country-wide dealer meetings conducted by John H. Knapp, vice president in charge of sales, and James A. Sterling, advertising and sales promotion manager, who captained two groups of Norge representatives.

Norge's campaign is defined in a dealer plan book, designed for personal presentation by Norge wholesalemen, each particularized to carry the distributor's imprint. Three pockets of this big folder carry complete instructions and promotional exhibits. The Norge wholesale man acts as sales counsellor, reporting to the distributor and to the company on each dealer contact.

The campaign involves four Norge products, refrigerators, the broilator stove, the whirlator oil burner, and the Norge washers. It is based upon three general activities designed to gain maximum impact upon voluntary store traffic.

First of the general activities in a "cold cookery carnival," based upon the researched practice of the most successful department store methods in the many shows, schools, and exhibits that have been conducted throughout the country this year. The activity consists of daily lecture demonstrations of cold cookery methods and a series of weekly contests in which participants will enter recipes or actual cold cooked dishes for many local and national awards. Initial reports indicate that 78 per cent of Norge dealers are entering this activity and 52 per cent have appointed local cold cookery experts.

The second major activity surrounds the promotion of a limited edition of a new Norge "mystery" model, backed by detailed plans for intensive display, neighborhood promotion and demonstration.

Third of the general activities is a "friendship drive" among Norge owners to secure sales support for a program of outside selling that avoids "cold canvass" resistances and brings the most powerful selling proof to bear upon Norge prospects. Detailed plans for this phase of the campaign are based upon the selling practice of 2,014 sales-leading Norge Vikings and Norsemen (champion salesmens' organizations) as reported to the company by questionnaire.

A four-colored food arrangement chart and a silver oiling-date sticker are supplied to paste on each owner's refrigerator as a door-opening service in the "friendship drive."

Providing a new selling process and completely defining all phases of retail selling activity is a new retail sales manual.

New sales feature manuals on the various Norge products have been issued, all giving new market data, complete product description and tested sales practice on the broilator, oil burner, and washer.

Initial dealer reports show that 38 per cent of the dealers will handle the Norge oil burner, 84 per cent the washers, and 20 per cent the Broilator.

A series of 17 summer newspaper advertisements and 39 publicity stories, exploiting each phase of the campaign, are being used.

A colorful series of mailing cards, three novel summer window displays, new billboard posters and 46 new printed pieces of various types are also available.

Prizes and details of the $50,000 merchandise prize contest for Norge salesmen are described in a "treasure hunt catalogue." This book contains illustrations of the awards from which the winners will make their selection.

A chart has been provided each member of the Norge dealer and distributor organization which shows how the summer campaign fits into the year's objective, defines all activities and methods, and illustrates how each distributive factor interlocks. This is used by field men to sell distributors and wholesalemen; by them, in turn, to sell dealers and salesmen. It is used by dealers as the subject of weekly sales meetings and to plan their activities.

To provide a check on how the campaign is progressing, the company is receiving reports from each wholesale man on each dealer contact; indicating the degree of his participation in the campaign and the results which he is getting.

$2,500 Offered for Best Window Displays

DETROIT—A national window display contest for dealers in which 55 cash prizes totaling $2,500 will be awarded is one of the features of the summer sales campaign being staged by Norge Corp.

Contest opened July 15 and closes Sept. 1. Photographs of each window display must be accompanied by a statement that it has been "kept in" for two weeks and by written permission to use the photograph in any way Norge Corp. officials see fit. The window must exploit Norge products only.

Prizes will be awarded on the basis of attractiveness, beauty, selling punch, and pulling power. Prizes are: first, $500; second, $250; third, $150; next 12, $50 each; next 40, $25 each.

Norge Corp. has prepared three standard summer window displays around which dealers can originate their own innovations, if desired. A multi-colored display stressing the fact that Norge owners report savings up to $132 per year and including an illustration of a family enjoying a vacation in the mountains through the help of Norge savings is the principal display.

Norge has also provided an eight-piece balloon poster window display in which leading Norge sales points are imprinted on vari-colored circular stickers that can be pasted on the window in any arrangement desired.

No Selling Allowed At Buffalo Exhibit Of Refrigerators

BUFFALO—The *Buffalo Times,* in cooperation with local dealers and distributors, put on an electric refrigeration show in the lobby of its building here the week of July 23.

The show was publicized in an elaborate manner, a special 10-page section in the July 23 issue of the *Times* with editorial content and advertising entirely devoted to electric refrigeration being the high spot of the many activities used to bring the show to the attention of the Buffalo public.

Local distributors placed models (in the 7- or 8-cu. ft. sizes in the lobby of the *Times* building at 195 Main St. The displays were manned by sales engineers from the Niagara-Hudson Power Co. No selling was allowed on the floor, but prospects were given lists of dealers carrying the various makes of refrigerators displayed.

In addition to the special section on refrigeration published in the July 23 issue, the *Times* also ran a "streamer" headline across the bottom of the first page of the main section reading as follows: "All This Week — The Times Free Electric Refrigerator Display of All the Latest Models, 195 Main St."

Advertisements containing "teaser" copy relative to the show were spotted throughout the regular news section of the paper.

Distributors gave away an electric refrigerator for the best 10 word slogan on "The Advantages of Electric Refrigeration in the Home."

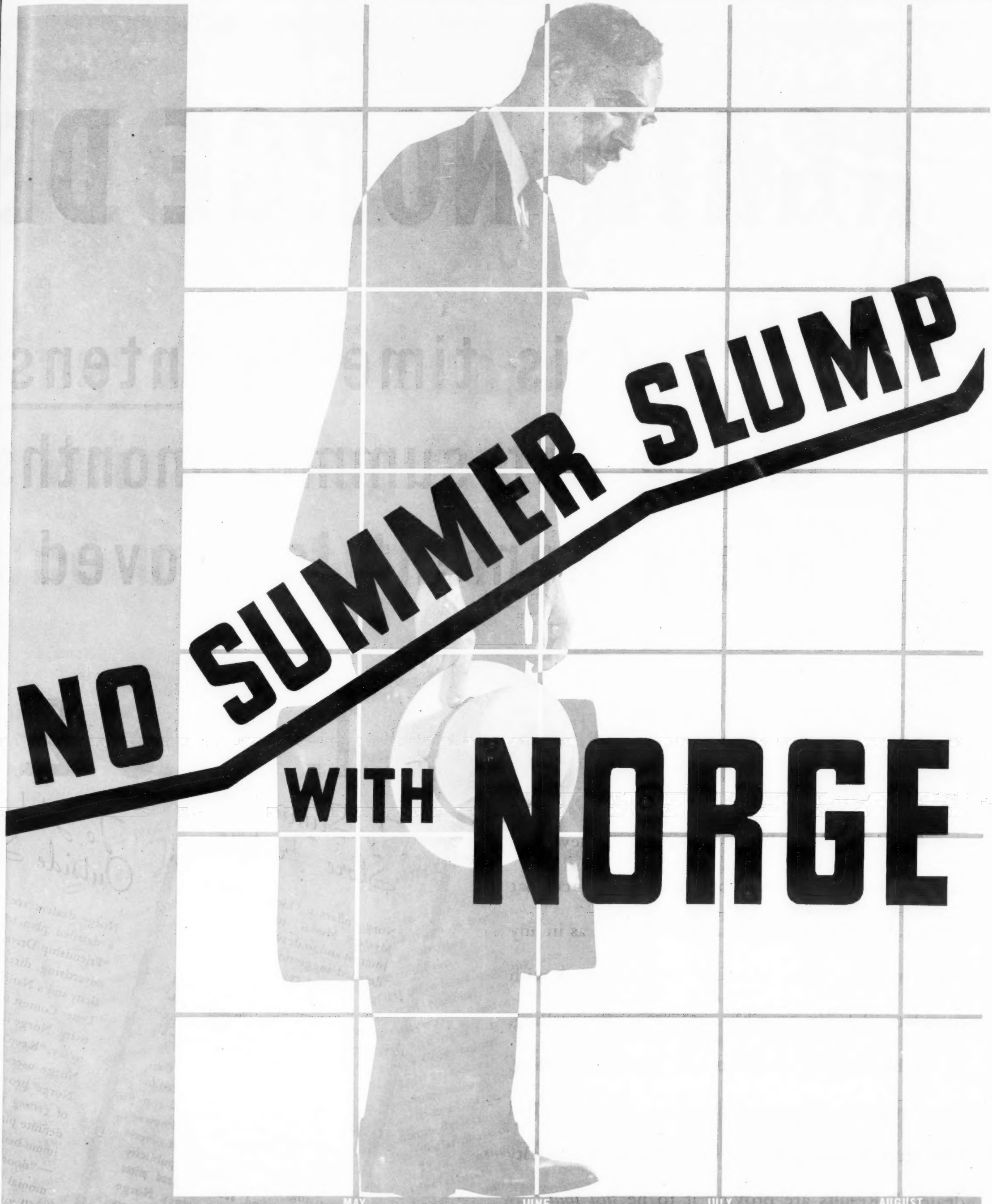
Other publicity mediums used included 350 street car cards, side banners on some 40 *Times* trucks, radio announcements over two stations morning, afternoon, and night; a large sign on Main St., signs in dealer's windows, and theater displays.

DETROIT LUBRICATOR COMPANY
TRUMBULL, LINCOLN, MARQUETTE & VIADUCT
DETROIT, MICH.

Manufacturers of "Genuine Detroit" Automatic and Thermostatic Expansion Valves, American Cubemakers, American Refrigeration Sections, Automatic Controls for Temperature and Pressure, Electric Valves for Refrigerant and Water Control, Thermostats, Humidistats and complete controls for Air Conditioning.
Descriptive literature gladly sent upon request
Division of
AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Does Smoke Get in Your Eyes?

When showgirls from the musical show "Roberta," which featured the song "Smoke Gets in Your Eyes," wanted to relax, they gathered around a deluxe Frigidaire for a cold snack. It may not be smoke, but something gets in our eyes when we look at Virginia Whitmore, Sandra Walters, Barbara Child, and Barbara Williams.


NO SUMMER SLUMP
WITH NORGE
MAY
JUNE
JULY
AUGUST
Proof?
READ THE NEXT THREE PAGES » »

AGAIN NORGE DE

This time by intensi
during hot summer months
every element is proved su

● Norge has always refused to believe "it-can't-be-done." Convinced by actual experience that refrigerators can be sold in August as well as in any other month, Norge backs up the conviction with complete, definite, tangible *support* in store selling, in neighborhood promotion and in outside selling. The Norge Summer Sales Campaign has been called "the most helpful program ever offered to specialty dealers." Results are proving it to be *just that.*

1.

To Stimulate Store Traffic

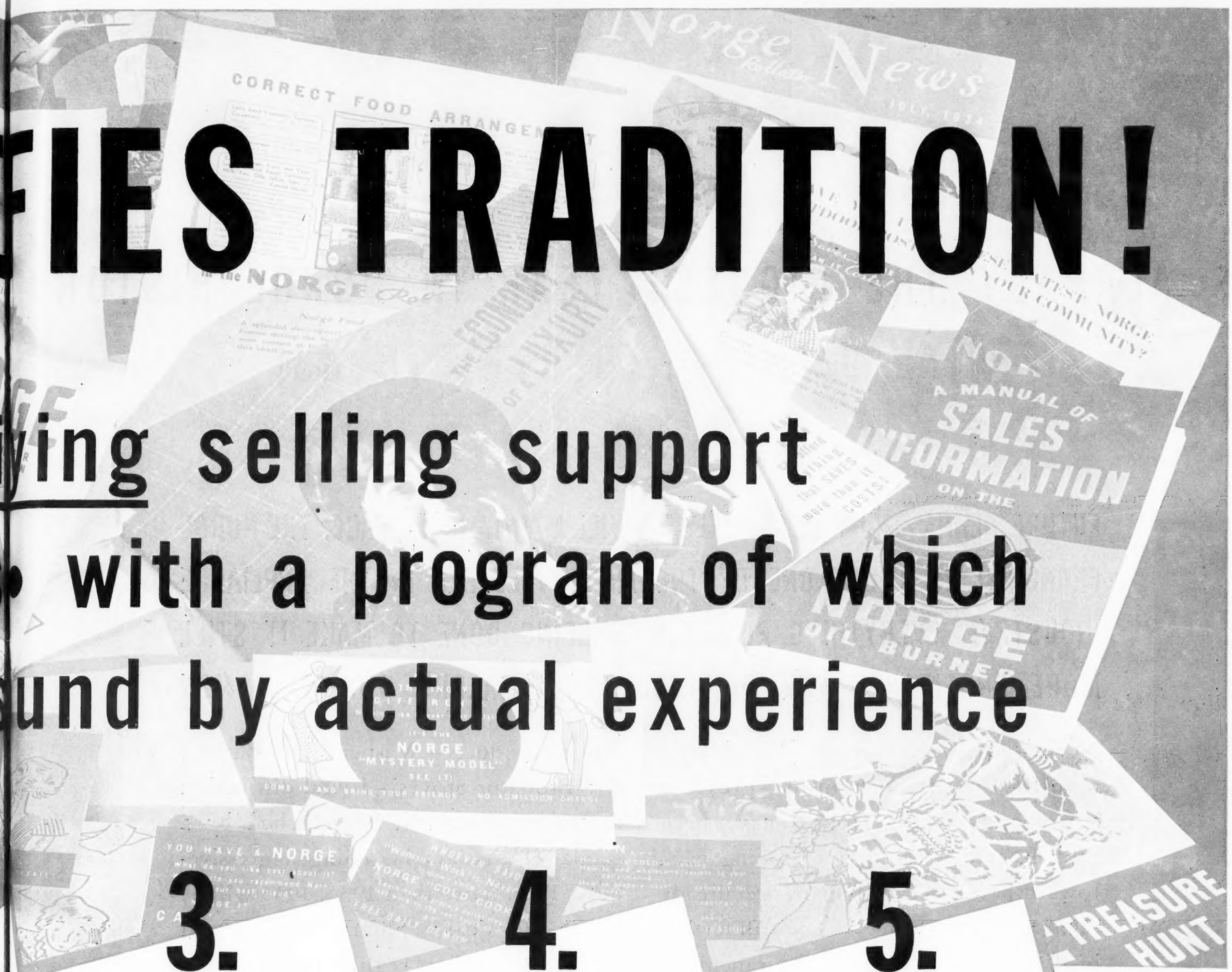
Norge offers a "Limited Edition Mystery Model" to arouse local interest and to draw store traffic—detailed suggestions as to how to get the best results from display of this mystery model, the most beautiful refrigerator ever created — a campaign of newspaper advertisements — direct advertising —publicity releases for local newspaper use.

The Norge "Cold Cookery Carnival"—a local activity, planned to the last detail by Norge — supported by Norge with local newspaper advertisements, direct advertising, window displays, publicity releases and **$2500 in grand prizes** for Cold Cookery recipes. Norge provides Home Economics Experts who are available to dealers for conducting store meetings.

2.

To Help in Outside Sel

Norge dealers are pro a detailed plan for p "Friendship Drive," to advertising, direct li licity and a National Letter Contest to ba tivity. Norge is not to say, "Keep in to Norge users for Norge provides of *getting* in to definite plans f imum benefit f —"door op monial con will give 10 yond that, an added the Nor Norge


CORRECT FOOD ARRANGEMENT
Norge Kollaton News
A MANUAL OF SALES INFORMATION ON THE NORGE OIL BURNER
NORGE "MYSTERY MODEL"
COME IN AND BRING YOUR FRIENDS NO ADMISSION CHARGE
YOU HAVE A NORGE
TREASURE HUNT

FIES TRADITION!

sifying selling support ns with a program of which sund by actual experience

3. Special Sales Training

The "Summer Book of Profits"—a new, timely manual packed with sales winning ideas, suggestions and instruction, geared to conditions as they exist right now; "Norge News"—a monthly magazine of genuine help to every member of the Norge organization; a Cutaway Rollator which demonstrates clearly the superiority of the Norge mechanism; "Good News Bulletins"—interesting, stimulating and tangibly helpful daily letters; a "Ready Reference Kit" which has been called the most powerful selling tool ever given to specialty salesmen; Comparative Rating Charts with which salesmen can sell Norge on a basis of "Plus Value."

4. Summer Advertising

Every phase of the Norge Summer Sales Campaign is supported by special advertising—both newspaper and direct.

First there is a compelling campaign of National magazine and newspaper advertisements—scheduled and paid for entirely by Norge Corporation.

Second comes co-operative newspaper advertising, with a wide selection of advertisements which enable dealers to emphasize any particular phase of the drive.

Third, a generous number of special mats are prepared for dealer use during this campaign in addition to regular mats which are available.

Fourth, special new printed matter for direct advertising is available.

5. Special Inducements

During the Summer Sales Campaign, Norge will conduct a "Treasure Hunt" contest in which **$50,000** worth of valuable prizes will be given to wholesale and retail salesmen. Grand prizes will be a **trip to Bermuda** for two, all expenses paid, **a week at A Century of Progress** for two with transportation and all expenses paid and a **$200.00** cash prize. Other awards will be valuable and desirable merchandise from a wide selection.

In addition to the "Treasure Hunt," all Norge dealers may compete in a Window Display Contest in which 55 cash prizes totaling **$2,500** will be given for best windows.

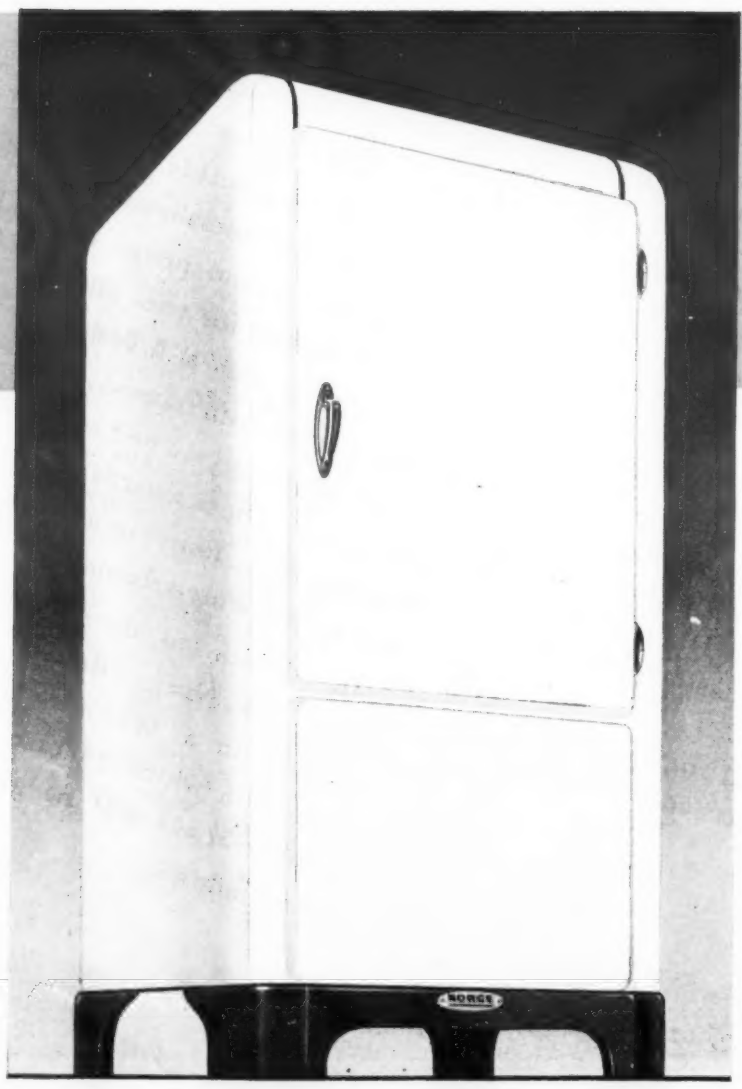
1934

IS ALREADY THE BIGGEST YEAR IN NORGE HISTORY

WITH FIVE MONTHS YET TO GO!

FUTURE PLANS—NOW IN PROGRESS—WILL MAINTAIN THE PACE. THE NORGE FRANCHISE IS TODAY ONE OF THE MOST VALUABLE IN THE APPLIANCE INDUSTRY. EVERYTHING POSSIBLE IS BEING DONE TO MAKE IT STILL MORE PROFITABLE FOR DISTRIBUTORS, DEALERS AND SALESMEN

Norge success is cumulative. Month after month—for fifteen months—previous corresponding sales records have been broken. But Norge is not looking back toward past successes. Plans are already being laid to advance Norge still further in 1935—to make the Norge franchise a still greater source of profit to dealers. • Not only in refrigeration, but in all Norge products—Washers, Oil Burners and Broilator Stoves—a vital distinction in the product will be matched by a similar distinction in selling aggressiveness. Even more than 1934, 1935 will be a "Norge Year." Smart, fore-sighted appliance dealers realize this and are tying in with the Norge profit-making opportunity.



NORGE

Rollator refrigeration

write for details of the Norge line and the Norge plan of selling.

NORGE CORPORATION

DIVISION OF BORG-WARNER CORPORATION

606-670 East Woodbridge Street, Detroit, Michigan

Distributors, Dealers & Users Determine Sales Policies

NEW YORK CITY—"The practice of gaining accurate, comprehensive, and pointed distributive counsel from distributor, dealer, and consumer on every important detail of our advancing operation has been directly responsible for Norge success," declares Howard E. Blood, president, Norge Corp., in the June, 1934, issue of *Executive Service Bulletin.*

"The technique of distributive counsel, which we believe has been directly responsible for the Norge record, is one that any company may employ economically and with benefit to itself," Mr. Blood states.

"Notice that I say 'counsel' rather than 'council.' There is a difference here. Many companies have organized distributive councils through which they have brought together leading distributors, jobbers, or dealers into a permanent organization, duly officered. The councils convene at set times each year to discuss distributive problems and requirements.

"I have closely studied the methods and practices of many of these councils. It seems to me that more attention has been given to form than to useful results.

Foster Goodwill

"True, they foster distributive goodwill. They make the field organization feel it has a place in policy decisions. But, like any permanent organization, it tends to become political. There arise doubts among the dealer organizations as to whether this small group is truly representing it."

At best, the council reflects a fractional rather than a total understanding and there is, as a result, the constant fear that plans and programs are being illogically based upon the particular more than the general, Norge's president points out.

Further, careful reading of the minutes of certain such conventions leads to the criticism that they too often approve something already initiated rather than advise the initiation of an activity. Nor do they afford much suggestive assistance in the immediate solution of a distributive problem because, meeting at best twice each year, the crucial instance has usually passed or cannot be predicted.

Counsels, Not Councils

"Norge makes use of distributive *counsels,* avoiding the stiffness, tne slowness, the fractional complications, and the other drawbacks of 'distributive councils.'" Mr. Blood states.

"Only when something so important arises as to make a 'council' seem wise does Norge invite leading distributors or dealers in for special round-table discussion. Our method in this may appear loose in form but it is certainly solid in manipulation.

"Out of the past business generation there grew a tendency to separate the aims and interests of each distributive factor, but under our new business conditions company management cannot consider distributors, dealers, and the consumer as something apart from it and in an opposing category.

"It must think in family terms as if each distributive factor was an essential and indispensable member of one great family, each working towards the mutual interests of the other.

"Management must assume responsibility for the welfare, not only of its stockholders and employes but also for the profits of its dealers and the benefits that customers are promised.

Tenets of Norge Philosophy

"For these reasons we now have tremendous need for distributive counsel of a nature that will pull the interest of all more closely together. The main considerations back of the Norge philosophy in this matter are:

"1. New times and conditions call for the reversal of a typical management viewpoint. Heretofore it has grown accustomed to viewing an operation from the angle of the company out to the consumer. What is now needed is that it train itself to judge all moves from the consumer back to the company. Norge planning starts with the retail salesman and works back. Its local selling programs are not the weak precipitates and unsupported simmerings of plans that have exhausted their force before they arrive at the crucial point. They are the beginning and not the end of an impulse.

"2. Plans, methods, design, and program should be based upon the experience and expressed judgment of the distributive group concerned rather than upon the assumed genius of a single authority or company group. It is Norge policy to build products containing features that consumers would install were they able to build such products themselves. Similarly it is Norge policy to build its selling program to contain the elements which dealers would adopt were they able to design it themselves.

Research Characteristics

"Our sole concern is to arrange to gain the suggestions of a group sufficiently large to guarantee that we have struck general conclusions. From this standpoint, our method of resorting to counsel takes on the characteristics of research rather than of fractional opinions, which we believe would be the case if the practice of distributive councils was used.

"It makes little difference what the problem is, we let the distributive group concerned solve it for us. And we have worked out means by which we can get this counsel exceedingly fast, giving us the advantage of recency in our construction as well as avoiding the expense and delays occasioned by calling a convention.

Examples of Distributive Counsel

"Let me cite a few examples of how we have used distributive counsel successfully.

"In 1932, we reached a point at which we felt we had approached perfection in Norge mechanical design and performance. So we decided that greater latitude for improvement of our product might be found in other directions.

"We approached 100,793 women to ascertain their wishes in styling and features. Following their expressed desires, we redesigned the Norge cabinet in a manner that has set a new style standard. It represented the first clear departure from the old ice-box influence.

"Late in 1933, we were faced with the conjecture of what 1934 conditions would be. Production and market programs depended a great deal on an accurate prediction of probable buying intent, the present and probable Norge position in national ownership compared with competitors, the saturation of the market in terms of different sized cities and income classes.

"We conducted a study among 23,322 consumers in 339 cities within 30 days time and found specific evidence upon all these points which made it possible to predict the 1934 expectancy, define the angles of our marketing attack and build our promotion and presentation program upon appeals known to be effective.

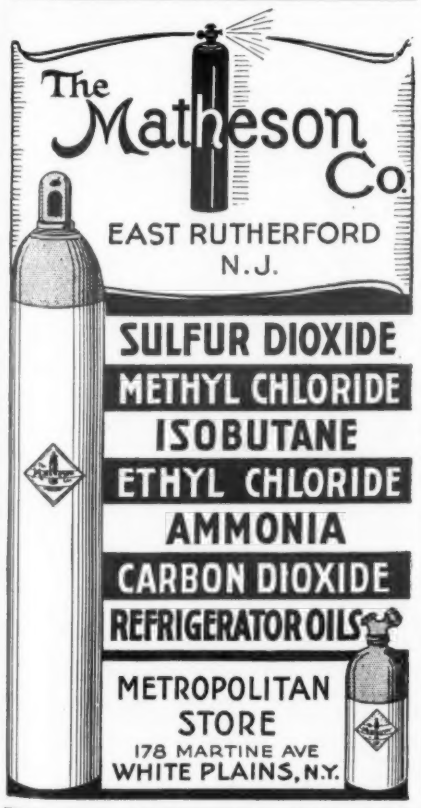
"We conducted a study in October, 1933, among 1,481 refrigeration dealers of all types to chart their past and probable volume increases to determine the performance differentials among dealers of different competitive makes and by size of city; their conditions, requirements, practices, and outlook. Upon these specific findings, sufficiently comprehensive to be reliable, we built the 1934 Norge marketing program.

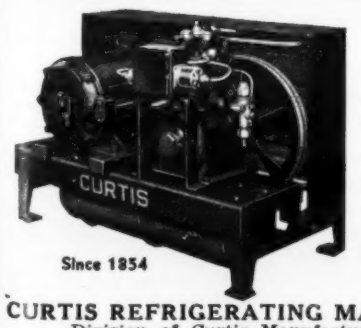
"A final example: It is apparent that with the shift of selling emphasis from price to value caused by present-day conditions, a tremendous sales re-training job confronts every appliance manufacturer.

"We could have had some university or some individual genius prepare such a course but this would have thrust the dangers of academic theory or of a single individual's questionable brilliance upon us.

"So we went to the 2,142 supersalesmen in the permanent Norge Viking and Norsemen's clubs and asked them what their best methods were in relation to the most important selling activities. Here were men who had won their spurs and who, every day, were practicing successful methods by the knowledge of which others could be helped.

"We let them write our sales training course. We took the best of their methods, combined them into 24 practical lessons that contain ideas and methods a salesman can rely upon."





CURTIS REFRIGERATION

Quiet, Compact, Slow Speed Condensing Units. Complete range of sizes for commercial and domestic applications. 1/6 h.p. to 5 h.p. Distributor Franchises still available.

NRA CODE

Write to

CURTIS REFRIGERATING MACHINE CO.
Division of Curtis Manufacturing Co.
1912 Kienlen Avenue, St. Louis, U.S.A. 518 H. Hudson Terminal, New York City.

HOME REFRIGERATION NEWS

VOL. 1, No. 1. PHILADELPHIA, THURSDAY, JULY 12, 1934. Circulation, 650,000

DEADLY WAR GAS IN ELECTRICAL REFRIGERATORS

Phosgene and Other Perilous Chemicals Endanger Life.

Firemen Carry Masks to Prevent Death

Just when is a chemical "harmless?" The refrigeration industry admits that it has never found a really harmless refrigerant. So long as the chemical is kept in the system of a gas or electric refrigerator it can do no damage to persons, but there have been so many cheaply-made mechanical boxes put on the market, with refrigerating gas generally under high pressure, that it is not surprising that dozens of persons have been killed when a leak occurs in the chemical containers and tubes.

Quantities Small.

It is a simple matter for instance to make methylene chloride so that it can be inhaled and drunk in considerable harm, in minute quantities. Yet in a higher concentration inhaling and when it is heated it is transformed into phosgene gas known as the poison used with such devastating effects in the World War. If harmless Carbon dioxide should leak and come in contact with your stove while it is hot, that also is phosgene. And only one part of this gas to 40,000 parts of air is poisonous and may cause death if breathed for even a few minutes! It is no idle fear that a pet of phosgene from this harmless fluid in a modern home or office or parlous over longer exposures. And there is nothing to which phosgene and the house—these chemicals and the poison gas they generate—are not found when it is kept. It is quite possible to be killed, as with the rarest monoxide from an automobile engine without even being warned of the danger. When we consider that phosgene gas this doesn't refer to the kind used by a gas stove, obtained by opening a mistake lighted match, even only a very little of it into the air and it is breathed. Ammonia, too used extensively in refrigeration is dangerous, and many lives have been lost by exposure to it by accident or mistake of refrigeration. So all this down the list of the more commonly used chemical or gas used to supply the electric or gas refrigerators, exposure to which might cause serious illness, lasting injury, or death.

Grocery Companies.

Grocery companies that are handling lots of fatalities and incurring lawsuits brought against them by customers by using their own refrigerators, pound no single word of warning to the unsuspecting public in publications—or campaigns—or even in their own bulletin, on which the people rely for guidance and social betterment ordinarily, to attain advertising expenditures. They don't want the public to know about the dangers over their heads. And the innocent buyers are purchasing, and using unknowingly, continue to expose their families to the utterly unnecessary and mortal hazard by using costly, inefficient, experimental brands, any one of which holds potential death to everyone in their households!

CONDITIONED AIR IMPORTANT FOOD PRESERVER

Only One Type Refrigerator Has This Vital Essential for Really Keeping Foods Fresh, Tasty, Wholesome.

The faithful old ice box of grandmother's day is no more recognizable beside the gleaming, modern ice refrigerator than would be the original gasoline-driven horseless carriage by the side of the latest streamline motor car. Yet, while the construction, design and beauty of the new type refrigerator has advanced by leaps and bounds, the underlying principle remains the same because it is based upon laws of nature that are unchangeable and as unfailing as the law of gravity.

To those who are taken in by the reams of ballyhoo surrounding the marketing efforts of various other type boxes, the only thing a refrigerator has to do is keep things cold. But to dietitians, physicians, engineers, that is only one of the many important phases of any food storage. Foods can get just as stale and lifeless in cold air as in warm. Freezing and thawing ruins edibles. Because so few people know the effects of food in the preservation of health, and the effects of improper storage, a few words about the workings of refrigerators might be of interest.

All Foods Breathe.

Starting with the time-tired ice refrigerator which has been giving satisfactory service for many decades, let's see just what happens during chilling. Fruits and vegetables breathe much as animals and people do. When you smell the scent of flowers, particles they release float into the air and are taken up in your breath. The same thing takes place within your refrigerator—that's what gives fresh foods the distinctive odors that are so savory to appetizing. But it's anything but tempting if butter tastes or smells like fish, or cauliflower. If ice tastes or stale cheese. How is that avoided in the ice refrigerator?

It is common knowledge that warm air rises and cold air descends—it is denser and heavier, falls. This natural law of thermodynamics is utilized in an ice refrigerator, setting up a constant flow of air, upward, not strong as to be able to keep spinning a miniature airplane propeller on a pinwheel. The cold air dropping down from the ice cannot possibly be kept fruits and vegetables from drying out, but which will dry and wither up its water from the foods themselves, instead of from the moisture surface of the ice. When the chilled air hits the bottom of the refrigerator, it imparts its chill to the stored foods, and becomes moister and slowly rises, lighter, in its process. The cousins it to rise again.

Bacteria Discouraged.

But the odors and gases breathed off from these foods are carried with the air back to the ice. Now are what happens. Here is the law of gravity to play. Water has a strong affinity for odors, flavors and the like, and the wet surface of the melting ice immediately traps all the odors and gases while they're yet fresh! (The gas is further condensed by the chill of the ice cake). Thus trapped, the melting water from the ice drips into the drain with all the impurities before they may become dangerous, or in any way a menace to health. The air is literally washed by passing over the wet surface of the ice, just as the rain washes the air and atmosphere you breathe is cleared and cleaned by a thunderstorm. This not only removes the smells and tastes picked up by the circulating air but also any stray particles of bacteria that may be in the refrigerator.

In air conditioning a building, the air is washed, chilled, and the humidity adjusted to the proper degree. Exactly the same process goes on automatically, as long as your ice refrigerator is used. Now let's look into the other type cold storage box and see what we find.

Electric Boxes Hermetically Sealed.

According to temperature air holds all the moisture it can get. When it has taken up all the water it will hold the relative humidity is 100 percent. Warm air holds more moisture than cold, hence the humidity is lower in far greater than in winter, though the relative humidity may be the same. When sudden cool was appear after a hot sultry spell, rain follows almost invariably because the cooler air isn't able to hold the moisture it contained when the temperature was higher. This moisture is condensed in the form of clouds and finally into raindrops.

Electric has the same thing goes on in a chemical refrigerator that is operated by gas or electricity. The air becomes saturated and immediately becomes necessarily dry. Freezing ordinarily so necessary for the meats which is the reason the troublesome frosting on the coils. The air dries out, the moisture is drawn from fruits and vegetables within the mechanical box. The natural moisture cannot be replaced by wetting with water—which it is gone forever. But that isn't all. With the water content of vegetables is also removed much of the flavoring and nutritive qualities of the foods. They become dried out, mechanical box makes ever more ways of overcooming this, without success. Even they advertise "dry cold," but when they found what a failure it was, they abandoned it. Aside this was they came around to the other extreme and supplied "dry-steam pans" to furnish moisture.

Why Cover Foods?

These, however, had only the effect of increasing the freezing, and the consequent need for defrosting at shorter intervals. During the defrosting periods, of course, the chemical box is completely sealed to the further detriment of the foods stored in it. As a factory report they advise that everything containing moisture, as all foods do, be kept in the refrigerator in a dehydration or dry-ing out process be retarded. Foods with 95 percent moisture taken from the air, and those with more than 10 percent moisture taken from the air, and those with more than 10 percent moisture, 60 percent, 80 percent, 90 percent. Even flour, about as dry a thing as can be imagined contains more than 10 percent moisture. Enclosing the moisture content of foods in a chemical refrigerator, seriously disturbs the proportions of these foodstuffs, and upsets the balance so wisely set by nature. Not the tempting odors and gases are innocent but distressing consequences that cannot be overcome by merely shaking up the balance by drinking a glass water or liquids.

Other Health Hazards.

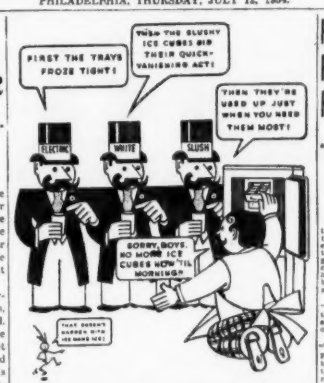
But there is a still more serious health and vital problem of diet—the poisoning of the foods themselves by the chemicals. Not only do they take away all odors and tastes that are necessary to appetizing foods, but they are still fresh.

On the other hand, in the chemical-mechanical-gas or electric box, three odors and tastes are sealed in. There is no air circulation, no humidity to speak of no way to change the gases and to escape. Examine the drain pipe of an ice refrigerator and you'll find a black sludge which contains the condensed gas odors, foreign tastes—in fact all the impurities of the air that is removed by ice refrigeration. None of this comes from the ice itself—for even a ice is so clean and pure that you can actually see its perfection. Dirt cannot penetrate its surface—it flows off and down the drain. The same dirt is present in all refrigerators, but in the electric box it is sealed in. What becomes of it? Where else can it go?

It stays there, becoming more and more stale, fetid, and finally putrid.

Get your own answer by tasting the mushy cube ice from an electric box. Or if you'll taste—and even smell—nearly everything stored in the box. And all the foods left in the box in cold storage are breathing the foul air—in the strong-ly pungent gases are absorbing tastes, gases and smells of all other foods stored in the same box! Is there any wonder that electrical health experts and physicians say are well informed long ago from ice refrigeration?

The baldness about "protecting health with electric refrigeration" has been properly branded a deliberate and abominable falsification remembered by the chemical-mechanical refrigerator industry, whose sole interest is not to protect health but to get more even the food the American public eats, but to reap greater and greater profits from the complicated experimental cold storage boxes to which unsuspecting housewives and to reap a harvest of dollars that would make the late Czar of King Midas look small by comparison.



(Apologies to Atlantic Refining Co.)

REMEMBER COLD STORAGE EGGS?

Government Campaign Against 'Rots and Spots' Recalled.

Many years ago the Government recognizing the health destroying possibilities of commercial cold storage, even when carried out under the most favorable conditions, launched a vigorous and telling campaign against this practice. Cold storage eggs were called "rots and spots." Cold storage meats were condemned and destroyed. Milk apparently preserved at low temperatures, was found to have a dangerously high bacterial count.

A hard-fought battle was waged, and the forces of government came out victorious. Cold storage was put on the public health and well-being was concerned.

Today, masters of mechanical refrigeration have come to the public rescue, urging householders to do their own cold storage in refrigerators. Not that eggs will keep any better in a refrigerator than in a well-ventilated cool place, but in any safer for the baby after it's born kept a week supply because it doesn't smell yet, but has meats, vegetables, fruits or fish that will improve with age. There are ample and obvious reasons for doing this, but the fresh, rather than storing it in a small, overcrowded refrigerator that becomes cold-storage "rots and spots" with neither freshness, flavor, appearance nor wholesomeness.

Those who aren't convinced by the flood of empty advertising claims know that the modern ice refrigerator will keep foods fresh longer than any other type. They know that the ice itself will last for five to ten days at a time, and that no known temperature can be achieved so fine it is—always 32 degrees, whether current be on or off, without "time out" to go-trusting, without smoke to turn, gadgets to watch, costly current consumptions, fumes or constant repairs.

PAPERS QUASH NEWS OF EXPLOSIONS, FIRE

'Hush-Hush' Policy on Destruction and Deaths Caused by Chemicals.

LARGE ADVERTISERS

The general public may suffer from fires and from explosions in their homes, originating from chemical refrigerators exploding, but the press, so or in 10,000 perhaps, even considers the fact that highly explosive and inflammable gases in a box which we may bring death and destruction to the household where it is supposedly guarding the family's health.

This public may look to their newspapers for protection, but it will be in vain. A billion-dollar industry associated with the refrigerator has a definite hold on the press and every publication dependent upon it for its existence. A single advertiser may spend more than a million dollars annually in a newspaper, and the combined power of the refrigerator industry is enough to control the policy of any publication.

Today, when mechanical refrigerators are in the hands of the public, when householders to do their own refrigerating, when thousands of these boxes will keep any better in a refrigerator than in a well-ventilated cool place, but in any safer for the baby after it's born kept a week supply because it doesn't smell yet, but has meats, vegetables, fruits or fish that will improve with age. There are ample and obvious reasons for doing this, but the fresh, rather than storing it in a small, overcrowded refrigerator that becomes cold-storage "rots and spots" with neither freshness, flavor, appearance nor wholesomeness.

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REPAIR MEN REAP RICH HARVEST ON PARTS, SERVICE

"Pays for Itself" Myth Exploded by Facts, Figures and Experience of Electrical Box Owners.

Parts and Service. Simple words that sound no alarm in the mind of the unsuspecting buyer. Salesmen either mention it with hands turned the other way or not at all. A years guaranty usually goes with an electrical refrigerator and no matter how cheaply or shabbily built it may be it will usually stand up that long before giving trouble. But how many who think they're buying a "lifetime of food protection" realize the enormous toll taken by repairs and replacement parts to keeping the old electric box operating?

A Typical Case.

Dr Gordon W. Venable, 3301 W. Penn st., owns a Frigidaire electric box. This has cost him for the first three years, practically nothing for repairs. The original cost of the modest sized box was approximately $300 (enough to buy FOUR extra large ice boxes). Assuming that the next three years repairs and replacements alone amounted to $300 per year! This, according to Dr Venable, in addition to the electricity used in the machinery broken down much of the time, and the subsequent spoilage when it does go on the fritz unattended, while repairs are being made.

Cheaper Than Ice?

Let's get to the bottom of this "cheaper than ice" claim, which is made by the mechanical refrigerator industry. Intelligent buyers are up against facts—not claims. No refrigerator manufacturer has ever dared to make a specific statement about picking those figures for the household where it is supposedly guarding the family's health.

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THERMOMETERS SET HIGH TO DECEIVE BUYERS

Electric Mfg. Co Uses Subterfuge to Force Sales—Electric Racket Exposed.

WHEN IS FIFTY DEGREES HOTTER?

An advertisement in last week's papers throughout the country offered housewives free a mysterious gadget to overcome a condition that didn't exist (said to be worth a dollar they could get it for nothing for the asking, just for writing in [illegible] and there's the catch) their homes were wired for electricity.

The company making the offer is one of the old respected manufacturers. In fact, it's one of a group that has been scheming for years to find a method of getting [illegible] men into kitchens where they could do a better position to put a real sales and order program as a saving money for the customer replace good equipment with inferior, costly units. Thousands of such sales have been made in the past few years. Apparently the company believes the public likes to be swindled and will continue to fall silent and common-sense of buying comes, something for nothing.

Enter the Salesman

Fill out the coupon and they promise to send you something that will prevent exchange of odors in an old refrigerator. The salesman, one of the story to the well informed is that the refrigerators have no exchange of odors; but owners of electric refrigerators are so familiar with this feature of mechanical refrigeration that they consider it a defect in their refrigerators. As all evening the salesman comes. He's a fast talker, and is well drilled in selling his job is to make you dissatisfied with your present refrigerator. He would buy an electric [illegible] the latter is not under the [illegible] and explains that they're not only making a present of the valuable gadget, but also equipping your refrigerator with a device that will prevent the refrigerator is warmer than 50 degrees. Of course, you need a new one. You guessed it—they sell it!

Thermometers High

Well, the [illegible] starts right there. You get a [illegible] which you're supposed to read [illegible] every morning three times a day for a week. And the thermometer is [illegible] 50 degrees. If it doesn't [illegible] 50 and 45 degrees any time [illegible] 50-degree as the [illegible] chief would say, when he comes back he has little trouble, submitting the [illegible] to the [illegible] [illegible] [illegible]

ELECTRIC REFRIGERATION NEWS

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VOL. 12, NO. 14, SERIAL NO. 280, AUGUST 1, 1934

Heat Pressure

WEATHER is always important news. This season the weather has furnished some of the biggest news of the year, for the extremely high temperatures and the persistent drouth have made the agricultural situation in the United States acute—in addition to causing the citizens plenty of discomfort.

Coming on the heels of the Agricultural Adjustment Administration program of the government—a plan which arbitrarily forces curtailed production of crops and livestock—the drouth may cause a food shortage, and most certainly will boost food prices and raise the cost of living. In addition, federal relief funds are being poured into drouth areas, thus boosting the ante on the eventual tax bill which the nation must pay some not-too-distant day in the future.

One compensating feature of the drouth situation is that it has focussed a glaring spotlight on the economic fallacy of the whole AAA program of the Administration. It is perhaps the most serious blow the New Deal has received to date.

Another credit which can be entered on the ledger for the weather this season is the manner in which it has created and increased public favor for electric refrigeration and air conditioning. Ice shortages in various localities have made many housewives determine to get their refrigeration supply under their own control; and those who possess inadequate refrigeration —including poorly constructed electric refrigerators—have had the fact brought home to them that a *good* refrigerator is a home necessity. It has been a tough season on cheap boxes.

Air conditioning has been enjoying its biggest year to date, according to all reports. Especially the demand for *comfort cooling* has grown. Just as the electrical industry learned many years ago that a hot wave at the beginning of the summer meant a good season for electric fans, so the air-conditioning industry has found that continued hot spells are their best allies.

For a long time executives in the air-conditioning industry have been saying: "Yes, public acceptance of air conditioning seems to be assured. Everybody admits that it's 'a good thing,' but nobody seems willing to part with cash for an installation." This summer the excessive heat seems to have melted buyer resistance to some extent, and the air-conditioning industry may receive the initial impetus it has been needing.

Satisfied Readers

ONE of the figures which are most significant to a publisher is his "renewal percentage." By this phrase is meant the number of subscribers who renew their subscriptions each year upon expiration. For the 12 months ending June 30, 1934, the renewal percentage on subscriptions to ELECTRIC REFRIGERATION NEWS was 65.67 per cent, according to figures just compiled by the subscription department. At December 31, 1933, this percentage was 55.41; while on June 30, 1933, the figure was 50.18. Thus a steady rise in renewals is shown. The renewal percentage now stands at the highest point in the history of the NEWS.

Naturally the NEWS takes pride in this approval of its services and policies. When an industry thus demonstrates its confidence in a paper by *paying* for it of its own will and accord (subscription agents are not employed by the NEWS), it is a matter of considerable gratification to the staff. "Repeat business" is generally considered the most desirable kind of business, and that's exactly what these "renewal percentage" figures show.

This rising percentage of renewal subscriptions also indicates greater stability in the industry. When dealers are entering and passing out of the industry with great rapidity, as was the case a few short years ago, and when men are being hired and fired wholesale, numbers of expired subscriptions aren't renewed because the subscribers are no longer members of the refrigeration industry. Today, however, the industry's dealer body is more stable. A few thousand dealers are getting practically all the business, and appear to be fixtures in the industry. Most of them subscribe to the NEWS and, as the figures show, are so well satisfied with it that when their subscriptions expire they immediately send in a check for a renewal.

Chest-Type Models and the TVA

BEGINNING on page 1, column 1, of this issue is a news story regarding the approval of the Crosley chest model electric refrigerator by the Electric Home and Farm Authority. Emanating from EH & FA headquarters in Chattanooga, this story was telegraphed directly to ELECTRIC REFRIGERATION NEWS.

A statement in this news article needs elaboration and a bit of background. It is: "The new Crosley model is the *second* of the new low-cost model refrigerators to be approved for EH & FA financing, the first being General Electric."

Other chest-type refrigerators have been brought out in the last few weeks by Frigidaire, Kelvinator, Leonard, Norge, and Westinghouse —the last three named being announced in this issue of the NEWS. Telephone calls to the various headquarters of these manufacturers revealed the information that Frigidaire, Kelvinator, and Westinghouse expect approval on their chest models "almost any moment," and that the Leonard and Norge boxes have been submitted to the EH & FA authorities for consideration. Inasmuch as all these chest models are practically identical, it would seem logical that if approval were granted to one, it should be given to all.

Pending production and approval of their chest models, Frigidaire and Kelvinator "interim" models (conventional electric refrigerators on which prices were slashed to $79.50) have been widely sold by public utilities in the Tennessee Valley under EH & FA auspices.

David Lilienthal, president of Electric Home and Farm Authority, is quoted in the article as saying that "the low-cost models of refrigerators approved for EH & FA financing would be marketed throughout the country at the same price prevailing in the Tennessee Valley. This represents a new policy of the directors of EH & FA."

This may be a new policy to the EH & FA directors, but it is nothing new to the manufacturers of these refrigerators—who, after all, are the ones who will decide where they shall sell what they make. In their initial announcements the manufacturers of chest-type electric refrigerators have made it clear that these models would be offered to the entire country at $77.50 (Crosley quotes a retail price of $72.50), and would not be limited to the Tennessee Valley. These manufacturers reason that what is offered to dealers in one particular territory should, of course, be offered to dealers elsewhere.

LETTERS

Leading to a Price War

Trilling & Montague
N. W. Corner 7th and Arch Streets
Philadelphia, Pa.

Editor:

Answering yours of the 13th, regarding price changes which you call "price war." In my estimation it has not reached the warlike stage as yet, but I would say that things were leading a little in that direction.

FRIGIDAIRE—What we find is that Frigidaire have changed their prices on the Master 434 from $155.50 to $134.50 and advertising that as a price reduction. They have also taken their Super 434—4 foot porcelain and reduced it from $194 to $155.50. They are introducing a six foot box in the Master line at $169.50. They have reduced their price on the six foot porcelain model from $223.00 to $199.50. They have reduced their price on the 8 foot Master 834 from $280 to $245. . . . and yet they will tell you that they are not doing anything to their line which amounts to anything.

KELVINATOR — Kelvinator have taken one model, called the SB, that retailed at $235 and reduced it $36 making same $199. They have just introduced a 4.7 job that they had been using for apartment house work in New York as a 5-foot model and selling it at $129; claiming in newspaper advertising that it is a reduction of $30 from $159 price which is nothing but borax.

LEONARD — Leonard, because of the fact that the local distributor is overloaded, have reduced their prices from $10 to $20.

STEWART-WARNER — Stewart-Warner have changed their $199.50 six-foot porcelain model to $179.50; and likewise they have changed another model, but I do not recall the exact figures for the moment.

GRUNO—Gruno have had "specials" on 3 or 4 models. We understand they claim to have discontinued this, but nevertheless are offering substantial trade-in allowances.

I am sitting here in the middle, with the factory making no change in the prices, and asking for some special consideration from them for this particular territory even if they are not affected elsewhere, because we are being affected a little from this make, a little from that make, etc. I suppose one of these fine days I will be compelled to break out in a rash and put into effect trade-in allowances to offset some of the price changes taking place, so that we do not suffer too much by comparison.

Believe I have given you a few facts, but if you desire any additional information, do not feel backward, ask for it, and I will do my utmost to get the information for you.

I understand that you have requested the same information from George Conover, Raymond Rosen. Conover thinks the same as I do, that it has not yet reached a price war, but what is happening is the fact that each manufacturer is trying to stimulate business by having one or two specials and little by little introducing new models to replace certain models now in existence, not to have to give rebates to dealers or cause any confusion on time-payment paper that has been generated. This may be smart, but shows up very noticeably in our territory, as our market is better than 50 per cent saturated.

DAVID M. TRILLING.

No Signs of Price War

Judson C. Burns
Distributor General Electric
31st & Oxford Sts.
Philadelphia, Pa.

Editor:

The existing price war of which you ask information, now being staged in Philadelphia, is a dud, a false alarm, a misnomer. There is no price war in Philadelphia.

In this city of Brotherly Love, distributors are cooperative. They have an electrical association that makes distributors cooperative, friendly. Any conditions arising that seem disquieting are discussed in a friendly way at a luncheon, and thus all our troubles are smoothed away, leaving time, without mental disturbance, to devote to the chief end of our business, namely, making sales.

JUDSON C. BURNS.

Foundation for Selling

2132 N. Everest St.
Oklahoma City, Oklahoma

Editor:

I am a salesman of high grade specialties.

It appears to me that the time has about arrived when the sale of air-conditioning equipment for stores, offices, and homes will offer good opportunities for good earnings for the salesman who equips himself for the work.

I know nothing about refrigeration or air conditioning, and would like to acquire a rather broad general knowledge of the subjects, from impartial sources—that is, from sources that are not "boosting" any particular make or type of equipment.

Can you recommend any books, periodicals, or other sources of information on these subjects that might be helpful to me? I will greatly appreciate any suggestions you may make that might be helpful to me in laying a foundation for sales work in the air-conditioning field.

F. S. LACEY.

Answer: Read the NEWS.

Electrolux Specifications

Freed and Company
Moline, Illinois

Editor:

Some time ago we purchased a copy of your 1934 REFRIGERATION DIRECTORY and found it to contain a great amount of accurate and reliable information some of which has been very useful to us. However, we are disappointed in that no specifications on the Electrolux household refrigerator were included, and if you have them we would appreciate it very much if you would send them to us, especially as to refrigerant used, pressure attained and any information you have as to B.t.u.'s required per pound pressure.

E. A. FREED.

Answer: Electrolux Refrigerator Sales Co. has refused to furnish specifications of its household refrigerators for publication in ELECTRIC REFRIGERATION NEWS or the REFRIGERATION DIRECTORY.

Service Experts

Utilities Engineering Institute
404 N. Wells Street
Chicago

Editor:

We were very much interested in reading the splendid report of the interview between your traveling reporter, Mr. Elston D. Herron and Miss Jane Merritt of Pollack Refrigeration Service Co., Kansas City, Mo. We believe that that article which appeared in the July 18 issue brought out very nicely, several matters of great importance to every refrigeration service manager and every proprietor of independent service companies.

One of the most important of the points brought out in that interview we believe is expressed in the following quotation of a statement made by Miss Merritt.

"We've found that it pays to have capable men; in the long run, it costs us money to hire men that aren't really experts."

Some time ago Mr. Herron stated to me that he was given an assignment to go out and find a refrigeration dealer with a nice service department set up and to write an article about it. After traveling through about one dozen towns he failed to find a single dealer with an adequate service set up that was worthy of a good write-up.

The manufacturers of electric refrigeration equipment have spent several good sized fortunes developing and perfecting the fine mechanical units that are being turned out of the production line today. Surely, then, every distributor of electric refrigerating equipment and every independent service company should demand service men who are well qualified by proper, recognized and authoritative training for their positions.

Practically the same statement as is quoted above is made in the heading of the advertisement of Utilities Engineering Institute appearing on page 19 of the same issue. This heading is as follows, "Incompetent Service Men Expensive to Employers."

Perhaps employees of the electric refrigeration industry are now coming to the realization that the proper training of the personnel of their servicing department is an important factor in determining the permanency of their success.

E. T. SORENSON,
President.

'Top Icer' Offer

Kahn Bros.
General Electric Refrigerators
224 South 60th St.
Philadelphia, Pa.

Editor:

An attorney prospect of mine whose old electric refrigerator had stopped running told me of an offer made him by the "Top Icer" sponsors. If he would give them a signed letter to the effect that he had disposed of his electric refrigerator because it was expensive to run, service etc. and that he preferred ice man's ice they would present him with a Top Icer free of charge.

Looks like Custer's Last Stand at the Battle of Bull Throw.

GEORGE KAHN.

Want to Make a Sale?

Division Refrigeration
5352 W. Division St.
Chicago, Ill.

Editor:

We are interested in having manufacturers of refrigeration equipment, particularly commercial compressors, get in touch with us, as we will very soon be in the market for a quantity of refrigeration equipment.

DONALD VANDERCOOK,
Sales Manager.

Operation of Meter Purchase Plan Is Explained for an Inquirer

McCann-Erickson, Inc.
Advertising
625 National City Building
Cleveland, Ohio

Editor:

We are in need of some information on the Refrigerator Meter Purchase Plan now being used by General Electric, Kelvinator, and other companies, and would appreciate your forwarding any data you may have on this subject.

Following are some of the questions on which we are in doubt:

1. Which companies are manufacturing the meters now in use?
2. How and by whom are the meters serviced after installation in the home?
3. What happens if payments are not made regularly?
4. Who handles the financing and credit situation?
5. What is the increase in price to the consumer on meter-purchase refrigerators?
6. Approximately what percentage of the refrigerators now in use are being bought on the meter-purchase plan?
7. What is the average length of time required to purchase a refrigerator under this plan?

An early answer to the preceding questions, along with any other facts you consider pertinent to the situation will be greatly appreciated.

JAMES WATT.

Answer: We shall attempt to answer your questions in order, as follows:

1. Manufacturers of coin meters:

General Electric Co., Industrial Dept.
Schenectady, N. Y.

International Register Co.
15 S. Throop St., Chicago, Ill.

Landis & Gyr, Inc.
104 Fifth Ave., New York, N. Y.

Mills Novelty Co.
4100 Fullerton Ave., Chicago, Ill.

Frank E. Pierman, Ottawa, Ohio.

Seeburg Corp., J. P.
1510 Dayton St., Chicago, Ill.

Zell Products Corp.
536 Broadway, New York, N. Y.

2. The dealer's collection men make regular calls at homes in which refrigerators have been installed on the meter plan to remove money from the meters. We understand that the meters require very little service, but collection men are usually able to make minor adjustments, and the dealer service department can generally do other work necessary—if any.

3. If payments are not made regularly, the refrigerator is removed from the home where it has been installed. This is generally done as soon as it becomes apparent that the buyer will not, or cannot, meet payments on the dot.

4. Dealer handles the financing of the refrigerators, although he likely rediscounts it through a finance company. Large operators, like department stores, however, carry their own paper on appliance sales.

5. Increase in price on refrigerators sold on the meter plan varies with the size of the refrigerator, of course, but we have been informed that the average increase ranges between $15 and $35.

6. We have no data from which to estimate the percentage of refrigerators bought on the meter plan. There is every indication that more units have been sold on the meter plan this season than in any year past, and that the practice is growing.

7. The length of time required to purchase a refrigerator on the meter plan varies with the size and price of the refrigerator, a longer period being given for large boxes than for small ones. The average, however, ranges between 18 and 30 months. In a few cases, 36 months are given.

For further information on the subject of coin-meter merchandising, we suggest you read our editorial, "Fifteen Cents a Day," in the May 16, 1934 issue of ELECTRIC REFRIGERATION NEWS—an editorial which has been used as a basis of retail sales training classroom instruction by several electric refrigeration distributors.

More Letters from San Francisco Readers Concerning Effect of General Strike

Season Ruined by Strike

Moore Electric Supply
Division of
Herberts-Moore Machinery Co.
Stewart-Warner Refrigerators
San Francisco, California
July 24, 1934.

Editor:

The strike has now been settled definitely and positively. The newspapers give credit to the Federal authorities, to the citizens, and to different groups, but the real credit belongs to the state militia. The calling out of the state militia threw fear into the radical agitators and settled the strike.

The strike was started by outside, radical influences which led the San Francisco laborers into trouble that was not at all planned by the San Francisco men.

This communistic element had planned to make California a scene of their efforts particularly because of the fruit which has to be moved promptly, but it is believed that the radical element will give San Francisco and California a wide berth from now on as California has made it clear that subversive influence is not wanted here and outside radical elements are entirely unwelcome.

The general strike was a very serious matter, but it has had the good result of spreading a wave of American patriotism through the whole state and conditions are better here than they have been in some time.

During the strike, the refrigeration industry suffered materially. Ninety per cent of our real refrigeration season was ruined by the unsettled conditions during the strike. When it was known that the general strike was coming, the out-of-town dealers ordered boxes to be shipped, but not enough to keep the sales up to normal. In the general strike, we could make no deliveries from San Francisco. Our service was not affected as our refrigerator service man does not belong to any union.

The writer is the sales manager for the Moore Electric Supply who are distributors for the Stewart-Warner refrigerators. Stewart-Warner refrigerators have had a most gratifying season here in California in spite of the strike.

HENRY WOLFF.

Strike Talk Halted Sales

Westinghouse Electric Supply Co.
San Francisco, Calif.
July 19, 1934.

Editor:

The longshoremen's strike, which began May 9, has been so generally publicized in the newspapers and by word of mouth that people all over California have been discussing it daily. This situation naturally had a depressing effect upon public buying and held back sales to some extent.

The second factor which caused some shrinkage in public buying power was the closing of a number of industrial plants and the letting out of employees in stores all for the want of merchandise and raw materials which had piled up at the docks.

After the general strike was called over the weekend, business in all lines came to a standstill. Even sales that were made could not be delivered as no trucks of any kind were permitted to move.

It would be difficult to estimate a definite percentage in refrigerator sales lost on account of the strike. I could say, however, that many people who would have bought refrigerators postponed buying during the strike scare and will no doubt defer such purchases until next year.

JOHN A. CLARK,
Refrigeration Manager.

Business 'Stopped'

Leo J. Meyberg Company, Inc.
70 Tenth Street
San Francisco
July 21, 1934.

Editor:

What effect has the strike situation had on our refrigeration sales, deliveries, and installations?

We can answer this in one word, "stopped." It not only tied up all the refrigeration business, but also practically every other business. If a dealer did sell any merchandise it was impossible to deliver same.

The strike had its effect in the entire northern California section.

At this time we are pleased to note that the general strike has been called off and the various unions are voting to return to work.

We hope to be back operating on a normal basis within a few days.

O. N. ROTHLIN.

Pratt Is Optimistic

California Refrigerator Company
1077 Mission Street
San Francisco, California
July 23, 1934.

Editor:

Here is the condition now—most of the business was at a stand still during the strike in San Francisco and Oakland. However, the interest in the electric refrigeration seemed to keep up fairly well, and we now expect large business with the 110 ships in this port to be unloaded and reloaded, and the millions of tons of freight on the docks moved. Already the trucks have started moving this freight and many are working over time.

CLARENCE F. (SANDY) PRATT,
General Manager.

Grunow Plant Visited By Detroit Dealers

DETROIT — More than 100 newly franchised Grunow radio dealers in this territory last week combined business and recreation in a three-day trip given them by Specialties Distributing Co., Detroit distributor for General Household Distributing Co.

The retailers left Detroit July 25 for Marion, Ind., where they toured their manufacturer's plant and heard factory officials discuss the 1935 radio line, before continuing to Chicago in the evening.

Morning of July 26 was spent in trips through Grunow's George St. and Crawford Ave. plants, followed by a luncheon at the Lake Shore Athletic Club. Then came a short meeting with Grunow headquarters executives before the dealers went to Chicago's Comisky Park to see a ball game between the Washington Senators and Chicago White Sox. In the evening there was a banquet at the Chez Paree night club.

Brief business discussions were held until 10:30 a. m. on July 27, and then until 4:30 p. m. the Grunowmen visited the World's Fair. A 5 p. m. they left for Detroit.

Detroit City Gas Co. Boosts Sales With Free Service

DETROIT—Sales of Electrolux gas refrigerators by the Detroit City Gas Co. for the first four months of 1934 increased 624 per cent over the same period in 1933.

A five year guarantee and free service as long as the Electrolux refrigerator is on the lines of the Detroit City Gas Co. were two of the principal features in the utility's promotion.

Newspaper advertising, three-minute radio talks, and billboard advertising were used to back up the drive.

The Old and the New

The float shown was prepared by Ed Schumann of the Henne Plumbing & Tinning Co. of New Braunfels, Tex., for a "Trade Day" parade.

Salesmen Take Course In Home Electrification

KNOXVILLE, Tenn. — Two salesmen for a Knoxville electrical appliance firm have enrolled for the second three weeks summer session course in home electrification which is being offered by the University of Tennessee's school of home economics.

The Electric Home & Farm Authority is assisting the University of Tennessee in presenting this course.

Apartment House Buys 33 G-E Models

MILWAUKEE—W. R. Strack, owner of an apartment house here, has just installed 33 General Electric refrigerators in the building—31 X-5's, one HX-70, and one X-7. The sale was made by E. H. Schaefer Corp., G-E distributor here. Mr. Strack shopped five years before deciding definitely to buy, according to F. E. Peske of the distributing company.

Time alone reveals the dependability of a refrigerating unit's performance. Throughout ten years Universal Cooler products have demonstrated that they can be relied upon to deliver faithful, uninterrupted service always—that there are no better units made.

Refrigeration by Wire

UNIVERSAL COOLER CORPORATION
DETROIT, MICHIGAN — BRANTFORD, ONTARIO

MANUFACTURERS OF A COMPLETE LINE OF HOUSEHOLD AND COMMERCIAL REFRIGERATION EQUIPMENT

STATISTICS

159,602 Household Refrigerators Sold To United States Distributors by 14 Manufacturers in June, 1934

The following 14 member companies of the Refrigeration Division of the National Electrical Manufacturers Association (Nema) reported sales for June, 1934: Crosley Radio Corp., Frigidaire Corp., General Electric Co., Gibson Electric Refrigerator Corp., Kelvinator Corp., Leonard Refrigerator Co., Norge Corp., Rudolph Wurlitzer Mfg. Co., Servel, Inc., Stewart-Warner Corp., Sunbeam Electric Mfg. Co., Uniflow Mfg. Co., Universal Cooler Corp., and Westinghouse Elec. & Mfg. Co. Member companies not reporting included: Apex Elec. & Mfg. Co., Jomoco, Inc., Merchant & Evans Co., Potter Refrigerator Corp., Sparks-Withington Co.

HOUSEHOLD Lacquer (Exterior) Cabinets with Systems	Domestic Sales Quantity	Domestic Sales Value	Canadian Sales Quantity	Canadian Sales Value	Other Foreign Sales Quantity	Other Foreign Sales Value
1. Under 4.00 cubic feet	3,248	$ 177,837	3	$ 233	739	$ 44,500
2. 4 to 4.99 cubic feet	52,557	3,351,690	1,474	104,665	3,125	222,988
3. 5 to 5.99 cubic feet	40,472	3,152,783	787	64,653	1,181	98,611
4. 6 to 6.99 cubic feet	16,735	1,419,091	252	23,087	564	54,923
5. 7 to 7.99 cubic feet	12,712	1,407,379	334	36,789	474	50,314
6. 8 to 9.99 cubic feet	1,568	188,419	20	2,420	129	15,045
7. 10 to 12.99 cubic feet	117	23,288	.....	.....	11	2,296
8. 13 to 24.00 cubic feet	48	9,354	.....	.....	.....	.....
9. Total Lacquer	**127,457**	**9,729,841**	**2,870**	**231,847**	**6,223**	**483,677**
Porcelain (Exterior) Cabinets with Systems						
10. Under 4.99 cubic feet	4,534	366,449	1	88	306	28,186
11. 5 to 5.99 cubic feet	2,207	203,028	.....	.....	430	41,359
12. 6 to 6.99 cubic feet	4,363	481,136	2	177	254	30,000
13. 7 to 7.99 cubic feet	6,958	871,778	5	623	221	29,546
14. 8 to 9.99 cubic feet	1,568	232,606	14	2,170	100	14,309
15. 10 to 12.99 cubic feet	762	140,790	.....	.....	61	11,069
16. 13 to 24.00 cubic feet	391	96,894	1	237	48	12,085
17. Total Porcelain	**20,783**	**2,392,681**	**23**	**3,295**	**1,420**	**166,554**
18. Total Lines 9 and 17	**148,240**	**12,122,522**	**2,893**	**235,142**	**7,643**	**655,231**
19. Separate Systems	10,735	470,533	3	160	233	12,935
20. Separate Household Low Sides	627	11,293	120	1,626	50	1,183
21. Total Lines 18, 19, 20	**159,602**	.....	**3,016**	.....	**7,926**	.....
22. High Sides, ¼ hp. or Less	736	41,326	50	2,714	492	26,368
23. Cabinets—No Systems	76	6,862	1	110	1	110
24. Total Household	.....	**12,652,536**	.....	**239,752**	.....	**695,827**
COMMERCIAL						
25. Water Coolers with High Sides	2,147	205,975	8	568	35	2,962
26. Water Coolers with No High Sides	122	6,444	.....	.....	3	147
27. Ice Cream Cabinets with High Sides	699	102,743	13	1,804	74	9,830
28. Ice Cream Cabinets with No High Sides	444	64,042	38	3,959	9	1,278
29. Beverage Coolers with High Sides	2,334	180,099	5	330	3	259
30. Beverage Coolers with No High Sides	290	20,793	1	40	1	75
31. Room Coolers with High Sides	787	173,174	.....	.....	45	10,953
32. Room Coolers with No High Sides	649	82,633	2	372	18	1,823
Extra High Sides						
33. ⅓ to ½ hp. Incl.	4,653	334,781	113	9,272	1,145	87,228
34. Above ½ to 1 hp. Incl.	2,183	250,605	27	3,456	552	71,793
35. Above 1 to 5 hp. Incl.	1,165	218,418	14	2,402	207	33,532
36. Above 5 to 10 hp. Incl.	117	69,458	.....	.....	.....	.....
37. Above 10 hp.	66	58,251	.....	.....	.....	.....
38. Total Lines 33, 34, 35, 36, and 37	**8,184**	.....	**154**	.....	**1,904**	.....
39. Total Lines 25, 27, 29, 31, and 38	**14,151**	.....	**180**	...	**2,061**	.....
40. Extra Commercial Low Sides	6,148	197,272	205	5,726	800	19,682
41. Miscellaneous Cases and Cabinets	38	10,541	67	3,350	7	2,032
42. Total Commercial	.....	**1,975,229**	.....	**31,279**	.....	**241,594**
43. Totals—Household and Commercial	.....	**$14,627,765**	.....	**$271,031**	.....	**$937,421**

Bureau Estimates Sale Of 1,003,574 Units in First 6 Months

	Six Months Quota*	Estimated Total Sales	% Quota Realization
New England Division			
Connecticut	12,316	13,685	111.1
Maine	5,055	5,163	102.1
Massachusetts	31,503	37,210	118.1
New Hampshire	3,261	3,388	103.9
Rhode Island	5,167	5,957	115.3
Vermont	2,115	2,002	94.7
Eastern Division			
Delaware	1,315	2,349	178.6
Maryland & D. C.	13,004	28,894	222.2
New Jersey	31,489	43,100	136.9
New York	99,064	128,009	129.2
Pennsylvania	55,474	94,875	171.0
East Central Division			
Kentucky	7,228	15,130	209.3
Ohio	41,414	70,359	169.9
West Virginia	5,101	14,751	289.2
Middle West Division			
Iowa	12,168	17,022	139.9
Kansas	9,041	16,656	184.2
Missouri	17,807	40,540	227.7
Nebraska	6,261	12,213	195.1
Pacific Coast Division			
Arizona	1,866	2,801	150.1
California	50,365	47,623	94.6
Nevada	457	939	205.5
North West Division			
Idaho	2,114	3,665	173.4
Montana	2,272	4,309	189.7
Oregon	6,406	13,440	209.8
Utah	3,112	4,955	159.2
Washington	11,536	15,187	131.6
South Eastern Division			
Alabama	4,600	11,953	259.8
Florida	6,266	8,216	131.1
Georgia	5,318	16,902	317.8
North Carolina	7,005	17,089	244.0
South Carolina	2,789	7,139	256.0
Tennessee	6,261	17,711	282.9
Virginia	7,060	16,910	239.5
Great Lakes Division			
Illinois	49,376	74,348	150.6
Indiana	18,093	26,539	146.7
Michigan	28,408	40,856	143.8
Wisconsin	16,755	17,300	103.3
North Central Division			
Minnesota	12,668	14,298	112.9
North Dakota	1,607	2,670	166.1
South Dakota	2,059	3,468	168.4
Rocky Mountain Division			
Colorado	5,389	8,397	155.8
New Mexico	888	1,992	224.3
Wyoming	839	1,856	221.2
Southwestern Division			
Arkansas	2,915	6,846	234.9
Louisiana	5,275	6,873	130.3
Mississippi	2,283	3,318	145.3
Oklahoma	6,740	14,791	219.5
Texas	17,218	39,880	231.6
Totals	**646,723**	**1,003,574**	**155.2**

*Six-months quota is 64 per cent of years quota of 1,010,506 refrigerators.

23,229 Refrigerators Sent to New York During June

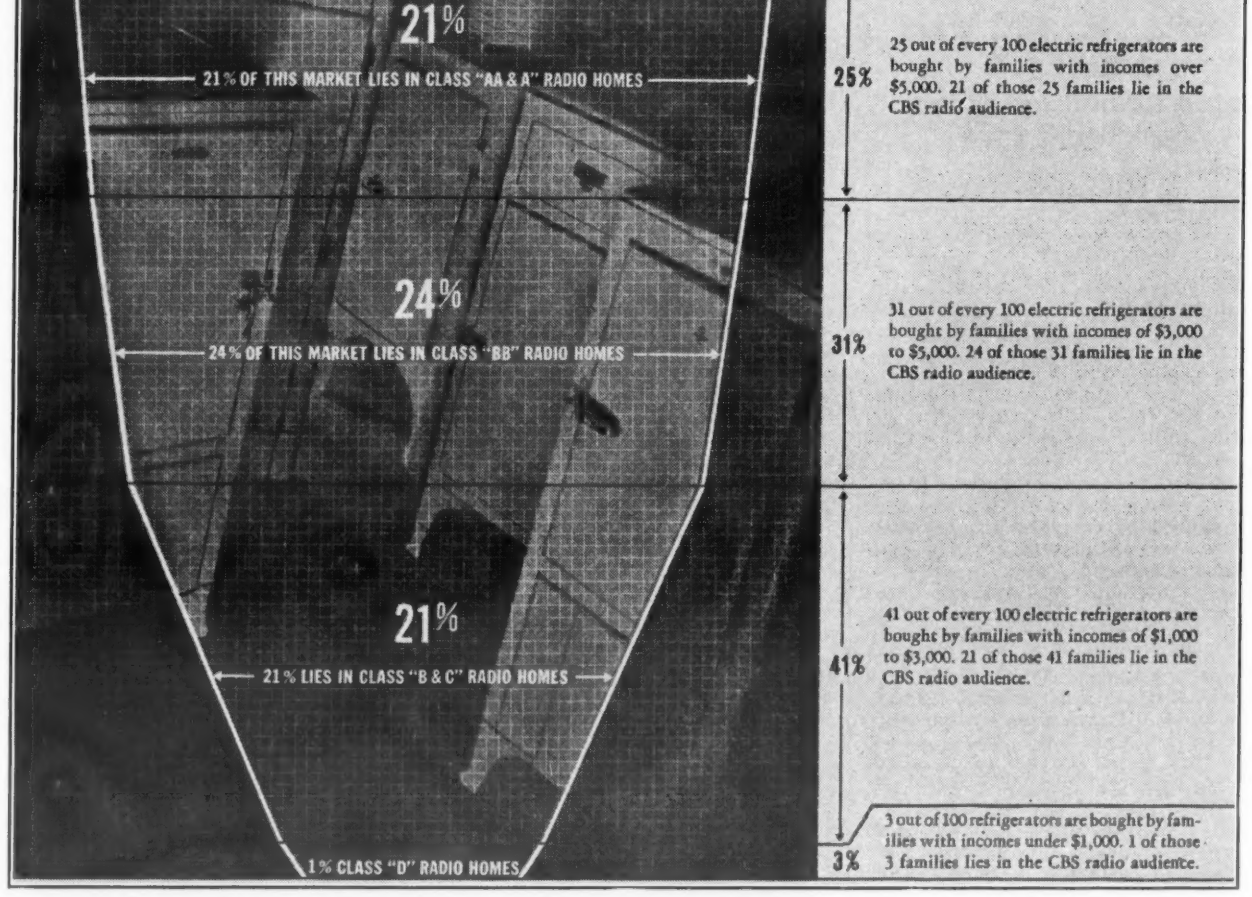
States and Territories	Household Low Sides
Alabama	1,789
Arizona	333
Arkansas	1,287
California	5,357
Colorado	1,477
Connecticut	2,154
Delaware	371
Dist. of Columbia	1,532
Florida	1,451
Georgia	3,731
Idaho	463
Illinois	11,432
Indiana	4,217
Iowa	2,486
Kansas	2,852
Kentucky	2,382
Louisiana	1,157
Maine	752
Maryland	2,617
Massachusetts	4,977
Michigan	6,547
Minnesota	2,643
Mississippi	443
Missouri	7,130
Montana	765
Nebraska	1,323
Nevada	136
New Hampshire	451
New Jersey	7,497
New Mexico	256
New York	23,229
North Carolina	1,910
North Dakota	443
Ohio	11,484
Oklahoma	2,416
Oregon	1,756
Pennsylvania	15,615
Rhode Island	828
South Carolina	781
South Dakota	576
Tennessee	2,759
Texas	6,094
Utah	623
Vermont	351
Virginia	2,750
Washington	2,286
West Virginia	2,857
Wisconsin	2,587
Wyoming	249
Total United States	**159,602**
Total Canada	3,016
Other Foreign (Incl. U. S. Possessions)	7,926
Total for World	**170,544**

14 Member Companies of Nema Report Inventories —Stocks Increase during June, 1934

HOUSEHOLD Lacquer (Exterior) Cabinets with Systems	U. S. A. INVENTORIES: Factory, Branch & Warehouse Quantity	Factory, Branch & Warehouse Value	Distributors Quantity	Distributors Value	Dealers Quantity	Dealers Value	Production Quantity
1. Under 4.00 cubic feet	454	$ 28,038	988	$ 54,877	5	$ 353	3,489
2. 4 to 4.99 cubic feet	21,478	1,520,542	17,754	1,165,421	13,931	919,493	24,805
3. 5 to 5.99 cubic feet	20,170	1,700,809	15,959	1,286,302	10,485	819,756	27,791
4. 6 to 6.99 cubic feet	22,691	2,111,287	10,047	961,487	10,692	960,566	5,332
5. 7 to 7.99 cubic feet	23,200	2,797,410	6,980	778,821	6,695	783,756	14,765
6. 8 to 9.99 cubic feet	8,198	933,729	1,553	186,200	2,277	258,485	114
7. 10 to 12.99 cubic feet	522	113,947	131	25,337	67	12,579	4
8. 13 to 24.00 cubic feet	125	27,485	58	13,651	9	2,243	11
9 Total Lacquer	**96,838**	**9,233,247**	***62,074**	**$5,141,864**	**44,161**	**3,757,231**	***86,962**
Porcelain (Exterior) Cabinets with Systems							
10. Under 4.99 cubic feet	13,814	1,169,591	1,787	150,543	2,373	193,596	502
11. 5 to 5.99 cubic feet	3,155	308,477	1,461	153,149	534	54,039	2,872
12. 6 to 6.99 cubic feet	9,071	1,037,274	4,604	544,563	5,108	592,571	2,935
13. 7 to 7.99 cubic feet	17,297	2,241,304	5,303	714,485	6,184	805,017	2,054
14. 8 to 9.99 cubic feet	6,915	1,013,925	2,266	342,452	2,369	341,500	1,342
15. 10 to 12.99 cubic feet	1,359	244,386	552	106,610	787	142,405	123
16. 13 to 24.00 cubic feet	1,379	329,724	349	87,696	247	57,434	.....
17. Total Porcelain	**52,990**	**6,344,681**	***23,040**	***2,711,566**	**17,602**	**2,186,562**	***10,505**
18. Total Lines 9 and 17	**149,828**	**15,577,928**	***85,114**	***7,853,430**	**61,763**	**5,943,793**	***97,467**
19. Separate Systems	36,804	1,916,889	.....	.....	.....	.....	13,981
20. Separate Household Low Sides	8,864	134,274	316	5,507	171	3,026	10,217
21. Total Lines 18, 19, 20	**195,496**	.....	***85,430**	.....	**61,934**	.....	**121,665***
22. High Sides ¼ hp., or less	1,264	69,305	213	11,667	133	7,071	8,609
23. Cabinets—No Systems	39,473	2,016,260	32	2,497	19	1,994	13,146
24. Total Household	.....	**19,714,656**	.....	***7,873,101**	.....	**5,955,884**	.....
COMMERCIAL							
25. Water Coolers with High Sides	5,833	580,712	2,072	223,663	516	47,551	444
26. Water Coolers with no High Sides	1,659	63,897	79	4,072	47	2,751	782
27. Ice Cream Cabinets with High Sides	860	117,757	76	10,826	7	997	280
28. Ice Cream Cabinets with no High Sides	2,255	301,423	225	28,836	19	2,312	.....
29. Beverage Coolers with High Sides	980	85,759	138	10,039	214	13,633	238
30. Beverage Coolers with no High Sides	981	54,571	227	14,961	76	6,363	371
31. Room Coolers with High Sides	1,169	292,579	220	49,571	147	30,346	76
32. Room Coolers with no High Sides	1,095	128,449	291	29,738	61	6,926	179
33. Extra High Sides, ⅓ to ½ hp. Incl.	6,562	550,776	1,553	141,716	561	45,162	4,398
34. Extra High Sides above ½ to 1 hp. Incl.	1,940	256,844	937	123,051	289	37,255	938
35. Extra High Sides above 1 to 5 hp. Incl.	2,019	419,270	568	119,417	182	34,865	486
36. Extra High Sides, above 5 to 10 hp. Incl.	143	80,897	18	10,069	2	1,112	7
37. Extra High Sides, above 10 hp.	.....	.....	2	1,804	.....	.....	2
38. Total Lines 33, 34, 35, 36, 37	**10,664**	.....	***3,143**	.....	**1,034**	.....	**5,831**
39. Total Lines 25, 27, 29, 31, 38	**19,506**	.....	***5,649**	.....	**1,918**	.....	**6,869**
40. Extra Commercial Low Sides	23,203	658,694	3,677	126,257	1,133	31,844	2,362
41. Miscellaneous Cases and Cabinets	832	235,976	184	57,165	34	8,736	72
42. Total Commercial	.....	**3,827,586**	.....	**951,185**	.....	**269,853**	.....
43. Totals—Household and Commercial	.....	**$23,542,242**	.....	***$8,824,286**	.....	**$6,225,737**	.....

*These totals are not the sum of the breakdown figures as two companies do not report on individual items.

Markets for Refrigerators in Radio Homes


21%
21% OF THIS MARKET LIES IN CLASS "AA & A" RADIO HOMES
24%
24% OF THIS MARKET LIES IN CLASS "BB" RADIO HOMES
21%
21% LIES IN CLASS "B & C" RADIO HOMES
1% CLASS "D" RADIO HOMES
25%
25 out of every 100 electric refrigerators are bought by families with incomes over $5,000. 21 of those 25 families lie in the CBS radio audience.
31%
31 out of every 100 electric refrigerators are bought by families with incomes of $3,000 to $5,000. 24 of those 31 families lie in the CBS radio audience.
41%
41 out of every 100 electric refrigerators are bought by families with incomes of $1,000 to $3,000. 21 of those 41 families lie in the CBS radio audience.
3%
3 out of 100 refrigerators are bought by families with incomes under $1,000. 1 of those 3 families lies in the CBS radio audience.

The above chart shows the refrigeration market as analyzed by Columbia Broadcasting System.

* * *

$1,000-3,000 Income Class Forms 41% of Refrigerator Market

NEW YORK CITY — Markets for household electric refrigerators and companion electrical appliances are analyzed according to income levels for the first time in a study, *Markets in Radio Homes*, just completed by the Columbia Broadcasting System, New York City.

According to the survey the richest market for major electrical appliances lies in families having incomes between $1,000 and $3,000 a year. Of every 100 electric refrigerators sold, 41 are sold to families who fit in this income level. This class also absorbs 49 out of each 100 washing machines and 44 out of 100 vacuum cleaners.

Families enjoying incomes ranging between $3,000 and $5,000 a year furnish the next largest market for these appliances, buying 31 per cent of all electric refrigerators, 22 per cent of the washing machines and 30 per cent of the vacuum cleaners sold to all income classes.

Those families having incomes exceeding $5,000 a year purchase 25 out of each 100 electric refrigerators sold.

Only 3 out of every 100 electric refrigerators are bought by families with incomes under $1,000 a year.

The Columbia study covers 20 higher-priced commodities manufactured by twelve major industries, the data being obtained from manufacturers, distributors, and dealers by means of detailed questionnaires. Letters were sent to 500 manufacturers, and dealers in various fields of merchandise whose nature and price would tend to produce sharp variations of distribution by economic levels.

The results of the study for the household electrical appliances included are summarized in the table shown below, which gives the percentage of the total markets for electric refrigerators, washing machines, and vacuum cleaners in each class.

According to the study, 67 per cent of the entire market for household electric refrigerators lies in radio-owning homes reached by the Columbia Network. The market analysts arrived at this conclusion by combining the results of the present study with those obtained in the *Vertical Study of Radio Ownership* made by Columbia last year with the cooperation of the U. S. Bureau of the Census.

Products in addition to household electrical appliances covered in the study are as follows: automobiles in various price ranges, men's shoes, men's suits, women's shoes, household paints and varnishes, sterling and plated silverware, watches, cameras, and life insurance.

The study includes detailed tables showing the extent of radio coverage of the markets for each product by income groups.

Appliance Market by Income Classes

Income Class	Electric Refrigerators	Electric Washing Machines	Electric Vacuum Cleaners
Over $10,000	6.2%	6.3%	6.4%
$5,000 to $10,000	19.1%	11.5%	11.9%
$3,000 to $5,000	31.2%	21.5%	29.8%
$1,000 to $3,000	40.5%	49.2%	44.4%
Under $1,000	3.0%	11.5%	7.5%
Total (All Income Classes)	**100.0%**	**100.0%**	**100.0%**

Connecticut Co. to Sell York Products

HARTFORD, Conn. — Connecticut Oil Heating Co. of this city has been appointed distributor of York commercial refrigeration and air-conditioning equipment for the state of Connecticut with the exception of Fairfield and New London counties.

The Springfield, Mass., division of the same company, which is known by the name of Automatic Oil Heating Co., has been appointed distributor for the same equipment in the Massachusetts counties of Hampden and Hampshire.

Refrigeration activities of both concerns will be under the general supervision of W. M. Clow, formerly associated with Servel and Kelvinator distributorships.

Air-conditioning activities in the Massachusetts area will be handled by Louis D. Bartlett. In Connecticut air-conditioning retail sales will be supervised by Henry D. Twitchell, and wholesale sales by Frederick K. Daggett, Jr.

These companies have also obtained distribution of the Evansway direct-fired winter air conditioner, manufactured by the George Evans Corp. of Moline, Ill.

Kerosene Electrolux Keeps Milk for Quintuplets

NEW YORK CITY—How a kerosene-operated Electrolux refrigerator aided in saving the life of the famous Dionne quintuplets in Corbeil, Canada, has recently been told by Julian Eveque, the Electrolux engineer who accompanied the refrigerator on its journey to the Canadian north woods farmhouse.

The Electrolux was presented to the Dionne family as a gift from Electrolux Refrigerator Sales, Inc., and the Hearst newspapers in Chicago and New York City.

Mr. Eveque made the journey to Corbeil with the refrigerator in the baggage car.

Prior to the arrival of the refrigerator, the home had been without any kind of refrigeration, according to Mr. Eveque.

Prof. Fessenden, Michigan Instructor, Dies

ANN ARBOR, Mich.—Prof. C. H. Fessenden of the department of mechanical engineering at the University of Michigan here died Thursday morning at the University Hospital where he had been confined since an operation in June.

Prof. Fessenden was an active member of the American Society of Refrigerating Engineers, and a contributor to engineering development in refrigeration, power boilers, and other mechanical engineering subjects.

He had been a member of the Michigan faculty since 1908 when he joined the department of mechanical engineering as an instructor. Four years later he was promoted to assistant professor, and in 1919 was made a full professor.

He had been in poor health for the past two years, but his condition was not serious until recently. Funeral services were held at the Muehlig Chapel in Ann Arbor, and the body was taken to Hamilton, Ohio for burial.

Kelvinator Employes to Visit Fair Aug. 10

DETROIT — Chicago's Century of Progress Exposition will become the mecca for employees of Kelvinator Corp.'s Detroit plant during the week-end of Aug. 10. A special train carrying the delegation will leave here early Friday arriving at the fair grounds shortly after noon.

John S. Garceau, director of Kelvinator's World's Fair exhibit, has arranged a number of special attractions and side trips for the visitors' entertainment during the week-end.

The party will be quartered at one of the large Loop hotels, and will return to Detroit late Sunday night.

Philadelphia Electric Show Planned for Oct. 8-13

PHILADELPHIA—The Seventh Annual Philadelphia Electric and Radio Show, sponsored by the Electrical Association of Philadelphia, will be held Oct. 8 to 13 inclusive.

Salmon Sells Units to Entire City Block

BROOKLYN — James Salmon of King's Appliance Corp. of this city recently sold Electrolux gas refrigerators to an entire city block (68th St. between 19th and 20th Aves.) containing more than 160 families.

Refrigeration Dealers!

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Names and addresses of all companies which sell products or services to the refrigeration industry, listed alphabetically.

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Geographical Section
Names and addresses of manufacturers together with executive personnel, telephone number, branch offices, and products, listed by states and cities.

Classified Products Section
Products and services sold by or used by the refrigeration industry listed alphabetically in related groups with names and addresses of manufacturers.

Specifications Section
Specifications of all standard models of all makes of household and commercial refrigerators in related groups listed alphabetically by trade names.

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Surveys of distribution channels and merchandising activity. Air-conditioning installations. Sales of electric refrigerators and companion merchandise. U. S. Census figures, exports, surveys of wired homes and potential markets, etc.

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8-1-34

SERVICE

Servicing Absopure Thermostats, Pressurestats, Float Valves & Freezing Units

COMPLETING the series of three articles on servicing Absopure commercial refrigeration systems, this week's installment treats adjusting and repairing thermostats, pressurestats, float valves, freezing units, removal of moisture from a system, brine tank leaks, lubrication, and charging methyl chloride into a commercial system. It is suggested that the service man use this information in connection with the previously published instructions on servicing series "E" and "F" Absopure compressors (July 18 issue) and on series "H," "I," and "J" compressors (July 25 issue of the NEWS).

Mercoid Thermostat

Two types of thermostats were used with Absopure commercial systems. Both have 8-ft. capillary lines which permit mounting them outside of the ice bunker. Thermostat part No. 1681 is used with air-cooled condensing units; part No. 3644 is the same as the above thermostat, except that a high pressure cut-out is added. This one is used with all water-cooled condensing units specifying a thermostat.

This thermostat is charged with a volatile vapor that actuates a mercury tube by pressure changes which result from temperature changes.

As shown in Fig. 1, it has a capillary line with a bulb at the end. The capillary line connects the capillary bulb with a metal bellows on the thermostat. The bellows allows the push rod to move upward and downward, responding to the pressure in the capillary line.

The push rod bears against the horizontal lever which is connected by a link to the mercury tube. The horizontal spring between the end of the lever and the thermostat box gives the thermostat a snap action by making the lever snap from one extreme position to the other.

When the lever is raised by a high pressure in the capillary line, the mercury tube is tipped so that the mercury makes contact between the electrodes in the mercury tube.

A lowering of temperature of the capillary tube allows the large vertical spring to force the horizontal lever down, tipping the tube in the opposite direction so that the mercury flows away from the electrodes, breaking the circuit and stopping the motor.

Thus, the pressure of the vertical spring governs the pressure, and, consequently, the temperature at which the thermostat breaks the circuit and stops the motor.

Mercoid Thermostat

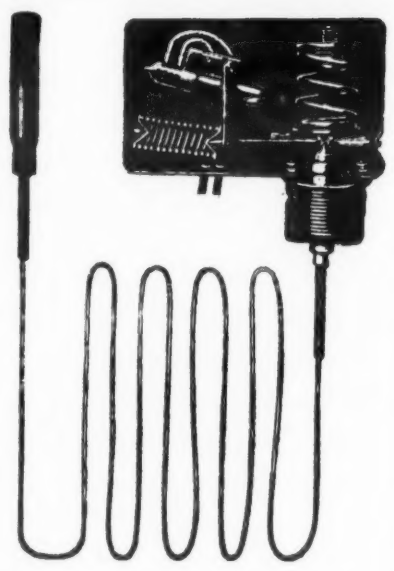

Fig. 1. Thermostat used by Absopure. Pressurestats were also used on some systems.

Adjusting Thermostat

Adjustment of Thermostat. The cup retainer at the top of the vertical spring is a nut on a rigid stud that is fastened to the top of the thermostat box. When you turn this spring, the cup turns with it, increasing or decreasing the tension on the spring.

To Raise the Temperature at which the thermostat stops the motor, turn the vertical spring to the *left*, thereby increasing the spring tension, and forcing the horizontal lever down against a higher capillary line pressure than formerly.

To Lower the Temperature at which the thermostat stops the motor, turn the vertical spring to the *right*, thereby decreasing the spring tension, and forcing the further reduction of capillary line pressure before the spring forces the lever down, breaking the circuit.

The above adjustments are to the "range" of the thermostat only. By "range," we mean the temperature maintained throughout the operation of the machine, regardless of the distance between the "on" and "off" temperatures.

The "differential" is the distance between the "on" and "off" temperatures. This is not adjustable. It is controlled by the compression on the horizontal spring.

The high pressure cut-out is a power element on the top of the thermostat that is connected into the high pressure side of the system by a line from its connection to a tee in the liquid line.

This mechanism tips the mercury tube to an "off" position if the condensing pressure reaches about 135 lbs., and automatically starts the unit again when the pressure is reduced to about 120 lbs. There are no adjustments of this part of the instrument. It is simply a protection against a failure of the water supply.

Repairing of Thermostats

There is little to get out of order on this thermostat. Occasionally, a mercury tube will burn out or break. If the tube discolors on the inside, it will not work properly. Defective mercury tubes can be replaced without removing the thermostat from the unit.

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Flooded Type Freezing Unit

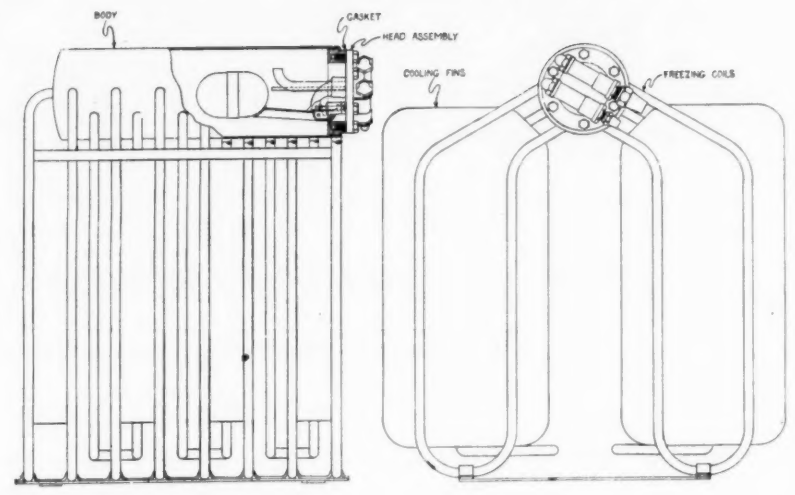

Fig. 2. Flooded type commercial evaporator widely used by Absopure. Note the low side float control valve.

Mercoid Pressurestat

There are two types of pressurestats used with Absopure commercial systems. Both control the operation of the unit by suction line pressure. This makes it possible to mount the instrument close to the condensing unit.

Pressurestat part No. 1685 is used with all air-cooled condensing units; part No. 2728 is the same as the above pressurestat, except that a high pressure cut-out is added. This one is used and supplied with all water-cooled condensing units that specify a pressurestat.

As the power element on the bottom of the pressurestat is connected into the suction line, the pressure in the power element is the same as the pressure in the suction line. The flexible bellows in the power element allows the push rod to move upward and downward, responding to the pressure in the suction line.

The push rod bears against the horizontal lever which, in turn, is connected by a link to the mercury tube. The horizontal spring between the end or the horizontal lever and the thermostat box gives the mercury tube a snap action, making the lever snap from one extreme position to the other.

When the lever is raised by the high pressure in the suction line, the mercury tube is tipped so that the mercury makes contact between the electrodes in the mercury tube.

A lowering of pressure in the suction line allows the large vertical spring to force the horizontal lever down, tipping the tube in the opposite direction so that the mercury flows away from the electrodes, breaking the circuit and stopping the motor.

Thus the pressure of the vertical spring governs the pressure, and, of course, the temperature of the freezing units at which the pressurestat breaks the circuit and stops the motor.

The "differential" or distance between the points where the pressurestat cuts "in" and "out," is also adjustable. The greater the tension on the horizontal spring, the wider apart the "in" and "out" points will be.

Adjusting Pressurestat

Adjustment of Pressurestat. The cup retainer at the top of the vertical spring is a nut on a rigid stud that is fastened to the top of the thermostat box. When you turn this spring, the cup turns with it, increasing or decreasing the tension on the spring.

To Raise the Pressure of the suction line and, of course, the temperature of the freezing units at which the pressurestat stops the motor, turn the vertical spring to the *left*, thereby increasing the spring tension and forcing the horizontal lever down against a higher suction line pressure.

To Lower the Pressure of the suction line, and, of course, the temperature of the freezing units at which the pressurestat stops the motor, turn the vertical spring to the *right*, thereby decreasing the spring tension and forcing a further reduction of suction line pressure before the horizontal lever is forced down and the motor stopped.

To Increase the Differential and the length of the "on" and "off" periods of the condensing unit, compress the horizontal spring by loosening the lock nut and turning *in* on the adjusting screw. Tighten the lock nut after the adjustment is made.

To Decrease the Differential and the length of the "on" and "off" periods of the condensing unit, reduce the tension on the horizontal spring by loosening the lock nut and turning *out* on the adjusting screw. Tighten the lock nut after the adjustment is made.

Repairing Pressurestats

There is little to get out of order on this pressurestat. Occassionally, a mercury tube will burn out or break. If the tube discolors on the inside, it will not work properly. Defective mercury tubes can be replaced without removing the pressurestat from the unit.

Float Type Freezing Units

Float type freezing units were used quite extensively as part of the Absopure commercial line. This type of unit, shown in Fig. 2, is often called a "flooded" freezing unit, to distinguish it from the "dry" unit that is used with an expansion valve.

Note that this freezing unit is virtually a receptacle with a large amount of outside surface that holds a quantity of liquid methyl chloride. A float valve admits liquid from the liquid line in sufficient quantities to maintain the level of the liquid a little above the center of the body of the freezing unit. The lower part of the body and the tubes are full of liquid.

The suction line connects to a valve on the freezing unit head. An extension of this line inside of the head runs to the top of the freezing unit.

When the condensing unit is in operation, the compressor draws methyl chloride vapor from the space above the liquid level in the freezing unit, out through the suction line. This reduces the pressure in the freezing unit and causes the liquid methyl chloride to boil, thereby absorbing heat.

The lower the pressure in the freezing unit the lower the temperature will be. As long as the condensing unit is in operation, the pressure will continue to drop. When the pressure reaches a certain point, the pressurestat will stop the condensing unit.

The freezing unit absorbs heat from the surrounding air all of the time that it is colder than the air. When the condensing unit is not running, it continues to absorb heat, with a consequent rise in pressure.

When the pressure rises a certain amount, the pressurestat starts the condensing unit again, and the cycle is repeated. This applies whether there are one or more float type freezing units in the system.

One of Float Valves

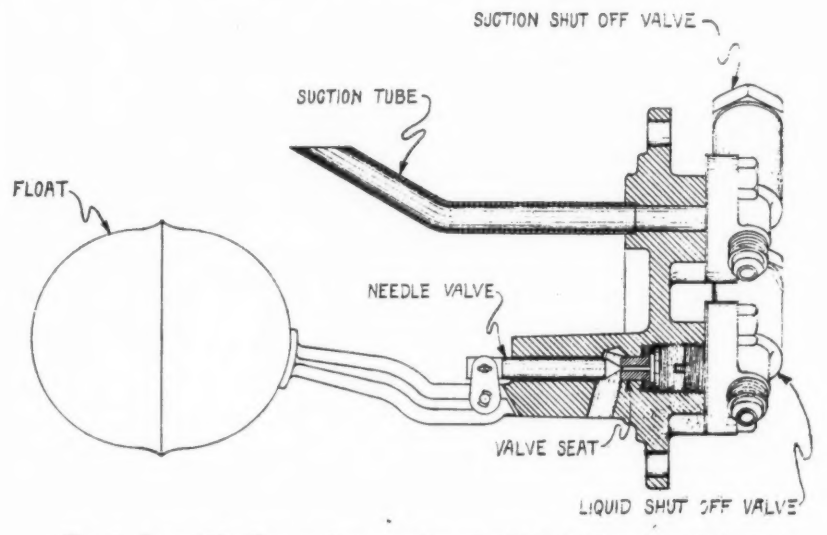

Fig. 3. Low-side float valve, service of which is described below.

Float Valves

Float valves must shut off accurately when the level of the liquid rises to a point where the valve needle bears against the valve seat. If the valve does not shut off properly, the liquid level in the freezing unit will be too high, and liquid methyl chloride will flow into the suction line, causing it to sweat or frost.

There are two designs of float valves used on Absopure float-type freezing units: One type, shown in Fig. 3, is used on the No. 5, No. 5-S, No. 6, No. 8, X-6, and X-8 freezing units. The other design, used on all other Absopure float-type freezing units, is shown in Fig. 4.

Testing Float Valves

You can tell whether a float valve is working properly by listening to it when the condensing unit is running. If there is a continual hiss, and the suction line leading from the freezing unit is not abnormally cold, it indicates that the system is short of refrigerant.

If the suction line is cold, it indicates that liquid is entering the line, due to a valve that will not shut off. A valve that is working properly has an intermittent sound.

The float rides on a boiling surface of liquid, and admits small quantities of liquid at close intervals. If a valve is perfectly quiet for a period and then lets in a quantity of liquid, it indicates a valve that sticks or binds. Such a valve should be repaired.

You can test any float valve—after it is removed from the freezing unit—by opening the liquid shut-off valve on the head, turning the head upside down so that the weight of the float will hold the needle against the seat, and drawing a vacuum with your mouth on the liquid line connection.

After drawing a vacuum, close the opening with your tongue. If the valve closes tight enough to maintain the vacuum for about half a minute, it will work all right.

A very good way to test float valves is to connect a 100-lb. air-pressure flexible line to the liquid shut-off valve and submerge the head in a horizontal position in a small tank of kerosene. With the float valve two-thirds submerged, a few bubbles are allowable. If there is a continual stream of bubbles, the valve will not work properly.

Repair of Float Valve in Fig. 3

The float valve illustrated in Fig. 3 is used on Nos. 5, 5-S, 6, 8, X-6, and X-8 freezing units. An examination of this drawing will show the construction. Note that the float valve has a removable seat. This is made of hard phosphor bronze, and is held in place by a screw which can be taken out after removing the liquid-shut-off valve. There is a metal gasket under the flange of the valve seat.

The valve seat is more likely to be the cause of trouble than the needle. The seat can be changed without removing the head from the freezing unit by shutting off the liquid shut-off valve, pumping the refrigerant out of the unit, removing the shut-off valve and retaining screw, and pulling the valve seat out with a paper clip or other piece of small wire.

Due to the time it takes to pump the charge out of the freezing unit, it is usually best to replace the entire freezing unit with one of the same model that has been repaired.

To replace a seat, it is necessary to pump the charge out of the unit, and once the charge is out, it is almost as easy to replace the entire unit. Rebuilt units can be kept for this purpose. This does away with the chance of having to pump the charge over twice to overcome the trouble.

When installing a new head as-

(Continued on Page 21, Column 1)

The RANCO THERMOSTAT for 1934 Has

ALL POSITIONS OF EACH LEVER AND THE DIAL POINTER CLEARLY SHOWN ON THE DIAL PLATE. No separate operating instructions are necessary and there is no possibility of confusion to the operator.

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How to Repair Brine Tanks and Lubricate Absopure Machines

(Continued from Page 20, Column 5)

sembly on a freezing unit, always use a new lead gasket. After repairing a float valve and re-installing the freezing unit, check every joint carefully to be sure that there are no leaks.

Repairing Float Valve in Fig. 4

The float valve illustrated in Fig. 4 is used on Nos. 10, 15, 25, 30, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, and 220 freezing units. An examination of this drawing will show you the construction of this valve.

Note that the shut-off valves are made as an integral part of the freezing unit head. If any work is to be done on the float valve, the refrigerant must be pumped out of the freezing unit, and the head removed.

Two screws hold the float and needle assembly to the head. Take the valve apart, clean all the parts, replace the needle or seat if necessary, and test it as described above under "Testing Float Valves."

Be sure that the arm that supports the float is not bent so that the float touches the suction tube and prevents the needle from seating. This would cause very erratic action.

When the head assembly is removed from the freezing unit, always install a new gasket before reassembling it.

Caution on Servicing All Float-Type Freezing Units

Before servicing any float valve, it is necessary to pump the charge out of the freezing unit. This is done by closing the liquid shut-off valve and running the condensing unit. Leaving the ice bunker door open shortens the required time. Pumping out the charge refrigerates or cools the freezing unit.

If you remove the head while the freezing unit is cold and leave the unit open to the air, moisture from the air will accumulate on the inside of the freezing unit just as it does on the outside of a glass of ice water.

Moisture in a system causes much trouble and must be avoided. Never take a head assembly off a cold freezing unit without having another head ready to put on *immediately*.

Repair of Leaks in Freezing Units

Float-type freezing units are made of brass and copper. Except for the connections on and around the freezing unit, head, all joints are soldered. These units must be handled carefully.

If a leak occurs, it can usually be repaired with an ordinary soldering copper, a little zinc oxide, and some 50-50 solder. This repair work should not be attempted by anyone not experienced in soldering.

Moisture

Indication of Moisture

The usual indication of moisture in a system is the intermittent or erratic action of one or more of the float valves.

When methyl chloride passes the valve seat from the high pressure side of the system to the low pressure side of the system and expands, it chills, and if there is moisture in it, the moisture freezes solid and is very likely to make the needle stick shut or open or cause it to admit liquid very erratically.

If there is an expansion valve in the system, moisture will very likely freeze it shut so that there is no refrigeration on that particular freezing unit.

If you believe there is moisture in a system, you can usually make sure by taking out one freezing unit, removing the head assembly, and examining the inside of the unit body and the float valve.

You will, of course, recognize ice if there is any there. Moisture that is not frozen will show plainly as small drops on the various parts covered with oil.

Removing the Moisture

Moisture in an Absopure refrigerating system with a drier, clear the trouble. The indications of moisture are given in the preceding paragraphs.

If there is only a little moisture in the system, it can be removed by using a drier, provided it is done properly. A drier is a small container filled with anhydrous calcium chloride.

To remove moisture from a refrigerating system with a drier, lear the liquid line of liquid, and install the drier in the liquid line at the condensing unit. On large commercial installations or apartment house systems, install two driers in parallel, using ¼-in. tees to connect them together at the ends. This makes it possible to leave the driers on the line longer than when only one is used.

With one or two driers in the liquid line, and the system in operation, the methyl chloride is circulated through the driers. The anhydrous calcium chloride absorbs the moisture out of the methyl as it passes through it.

It is necessary to let the freezing units warm up to get the moisture out of them. If they are cold enough that they frost, any moisture that is in them will freeze into ice and stay there. It is usually necessary to warm them up by shutting the unit off two, three or four times to remove the moisture. This depends, to some extent, on the type of the system.

Another good way is to leave the unit shut off over night, install one or two driers in the liquid line, and run the unit for ten or fifteen minute periods for several hours, leaving it off for like periods.

When operated this way, the freezing units never frost. Leaving the ice bunker doors open helps considerably in keeping the freezing units at the highest possible temperature.

Driers will only absorb a certain amount of moisture without dissolving the calcium chloride. They must never be used for long periods. Even if they do not absorb too much moisture, they become saturated with oil and lose their effectiveness.

Driers do little good when the freezing units are frosted over. It is a good plan to leave them on when you have finished operating the system, with the temperature of the freezing units high so that they will catch any small amount of moisture that may be in the condensing unit. Take them off the next day at the very latest.

After a drier is used once on a commercial system, it is not safe to use it again before it is refilled with fresh calcium chloride.

Moisture Removal Without a Drier

To remove moisture from a refrigerating system without using a drier is quite an undertaking. It is only done when there is so much water in the system that there is danger of dissolving the calcium chloride out of the drier and distributing it through the system.

An effective way of doing this is to remove all the freezing units of the float type and take them to the basement where you can work on them conveniently. It is not advisable to try and save the charge of methyl chloride as it is wet. Run a copper tube out through a window, and blow out the entire charge.

Wash each freezing unit out thoroughly with about a quart of carbon tetrachloride after emptying the oil out of it. Be sure that the carbon tetrachloride gets down into all the tubes.

Empty the freezing unit and rinse it very thoroughly with a quart of denatured alcohol. Wash the head assembly in alcohol. Alcohol will absorb any moisture that may be in the unit.

After emptying the alcohol out of the unit, pour in a pint of refrigerating oil, rinse it around well to take up the alcohol, and pour it out.

The chart in column 5 shows the amount of oil that there should be in each of the freezing units. This should be put in before the head is replaced.

The liquid and suction lines do not have to be taken out. You can pour alcohol into these at the top, leave them open at the bottom, and blow the alcohol through them from the top with pressure from a service tank.

The condenser and the flat tank freezing unit, if one is used, should be blown out the same way. Take the receiver off the unit and wash it out thoroughly with alcohol. After washing the lines, condenser and receiver with alcohol, blow refrigerating oil through them to remove the alcohol.

Take the cylinder or cylinder block off the compressor, pour out the oil, wash the inside of the compressor with carbon tetrachloride, and put new oil in it to the proper level. Remember that every refrigerant-containing part must be washed out clean, and moisture removed by the alcohol.

Header Assembly and Float Valve

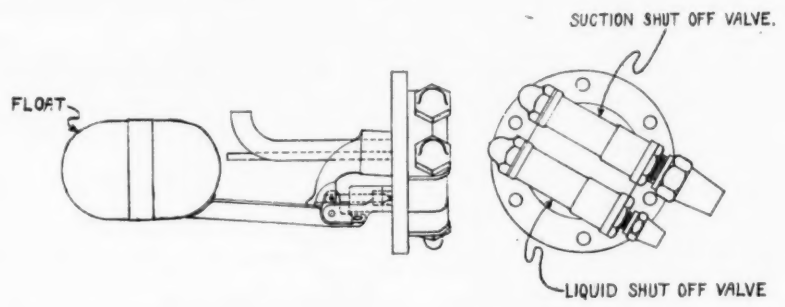


Fig. 4. A second type of float valve used by Absopure, with shut-off valves built integrally with the header assembly.

Brine Tank Leaks

Brine tank leaks seldom occur, but they can be a serious complaint and must be repaired quickly. Brine tanks are filled with a mixture of denatured alcohol and water.

Filling the Brine Tanks

The brine tanks should be filled with a solution consisting of 40 per cent Formula No. 1 denatured alcohol and 60 per cent water. The solution should be mixed before it is put into the tanks.

It is a rather difficult matter to fill the brine tanks after they are in place. It is better to fill them outside of the refrigerator, screw the caps on tightly, and set them up that way. If a pump is used to fill them after they are in place, there is considerable danger of spilling the alcohol solution in the box and tainting the food.

Care must be taken in handling tanks that are filled, as they are heavy, and if they are dropped or bumped, leaks may be started.

The first precaution against brine tank leaks is to fill the tanks before they are put in the bunker, examine them carefully to be sure that there are no leaks, and handle them carefully so that none will be started.

Indication of Leaks

Usually the first indication of a leak is the smell of alcohol in the refrigerator. Examine the tanks. Where the alcohol solution is leaking, there will be no frost on the tank, and the frost around it will be soft and slushy.

Repairing of Leak

Brine tank leaks cannot be repaired without taking the tank out of the refrigerator. Disconnect the necessary connections after pumping the charge out of the freezing unit, and remove the tank. Cap or plug the disconnected line, that air will be excluded from all refrigerant-containing parts.

Pour the alcohol solution out of the tank into some receptacle and save it. Rinse the tank out two or three times with water to remove the alcohol. Leave the filler cap off the tank and repair the leak with a soldering copper, a little zinc oxide, and 50-50 solder.

If the soldering is done while there are alcohol fumes in the tank, there is a chance of bursting the tank.

After the leak is soldered, fill the tank with water and examine it very carefully to be sure that the leak is repaired. When you are sure, empty the water out of the tank, fill it with alcohol solution, and reinstall it in the refrigerator. Be sure that the brine tank filler caps are on tight

Lubrication

The compressor is the only part of the system besides the motor that requires lubrication. The crankcase of the compressor contains oil, and the moving parts of the compressor are lubricated by the "splash" system.

The main bearings of all compressors are made with oil grooves and other means of insuring adequate oil between the moving parts. If there is approximately the correct amount of oil in the crankcase, there is no danger of the compressor being injured from lack of lubrication.

Methyl chloride vapor enters the compressor through the crankcase. A small amount of oil is carried out of the compressor with the vapor through the valves. To keep the oil level at the required height in the crankcase, a certain amount of oil is put in each of the freezing units.

As the methyl chloride boils in the freezing units, a small amount of oil is carried into the suction line with the vapor. It goes back to the compressor in small quantities, compensating for the oil that leaves through the valves.

Oil Level in Compressor

Single-cylinder compressors should have the crankcase filled with oil to between ⅛ and ¼ in. of the bottom of the camshaft when the cam is up.

Twin-cylinder compressors "E" and "F" should have the crankcase filled with oil to between ⅜ and ½ in. of the bottom of the camshaft.

Twin-cylinder compressors used on "H," "I," and "J" condensing units should have the crankcase filled to the level of the bottom of the oil gauge.

Fig. 5 illustrates the oil gauge used on "H," "I," and "J" compressors. It is possible to tell the exact oil level without removing the cylinder block.

Oil in Freezing Units

A certain amount of refrigerating oil serves each Absopure freezing unit. If, for any reason, the oil is taken out of the unit, it should be replaced. The amounts in each are as follows:

Model No.	Amt.	Model No.	Amt.
5	1 Pt.	100	1 Pt.
5-S	1 Pt.	110	2 Pts.
6	1 Pt.	120	2 Pts.
8	1 Pt.	130	2 Pts.
10	1 Pt.	140	2 Pts.
15	1 Pt.	150	2 Pts.
25	1 Pt.	160	2 Pts.
30	1 Pt.	170	2 Pts.
X-6	1 Pt.	180	2 Pts.
X-8	1 Pt.	190	2 Pts.
2136	1 Oz.	200	2 Pts.
2150	1 Oz.	210	2 Pts.
2166	1 Oz.	220	2 Pts.

Compressor Oil Gauge

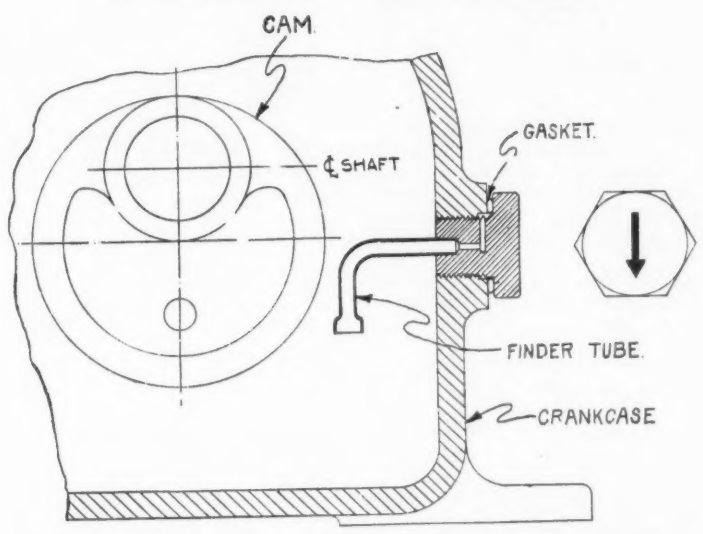


Fig. 5. Oil gauge built into larger Absopure compressors. Operation of this device for determining crankcase oil level is described herewith.

To find the oil level in the crankcase, loosen the oil gauge screw with a wrench. The arrow on the head of the screw indicates the direction of the finder tube. The end of the tube is one inch from the center of the screw.

When the end of the tube is above the oil level, methyl chloride vapor will come out from under the head of the screw; when the end of the finder tube is in the oil, oil foam will come out from under the head of the screw.

With the arrow pointing straight down, the end of the tube should be in oil. If it is not, shut off the line valves on the side and on the head of the compressor, remove the plug and fill the crankcase to the level of the bottom of the hole with oil.

You will see by the sketch that when the oil is up to the level of the tube, that the cams dip sufficiently to insure good lubrication.

Methyl Chloride Charge

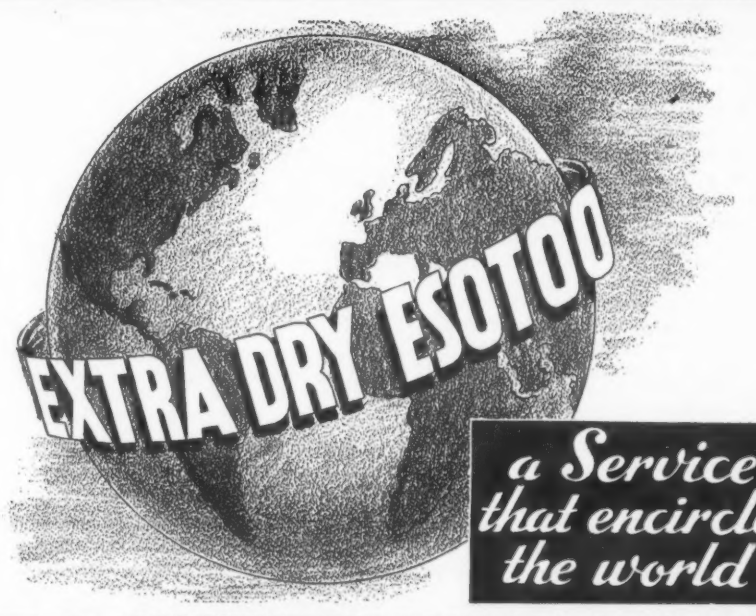
It is important that the commercial system contain the correct amount of refrigerant. If it does not, the system is very likely to give continual trouble. When you install a new system, turn to the table shown herewith for the approximate amount of refrigerant required by each of the float type freezing units. Figure up the amount of methyl chloride required for those installed.

For flat tank freezing units, you can figure ¼ lb. of methyl chloride for each tank. The correct amount of refrigerant to figure for the receiver

(Concluded on Page 22, Column 1)

Specifications of Absopure Freezing Units

Model No.	2136	2150	2166	X-6	X-8	100	110	120	130	140	150	160	170	180	190	200	210	220
Type	Brine Tanks 2 in. Wide by 21 in High			Float Type With Brine and Fins		Float Type for Use in Brine or Water			Float Type for Use in Commercial Refrigerators and Freezer Counters									
No. of Ice Trays	0	0	0	0	0	0	0	0	7	7	0	0	0	0	0	0	0	0
No. of Ice Cubes	...	...	...	...	...	...	...	...	189	189	...	...	...	....	....	....	....	....
Weight of Cubes	...	...	...	...	...	...	...	...	25.2	25.2	...	...	...	....	....	....	....	....
Refrigerant (Lbs.)	...	...	...	5	5½	5¼	8	9½	10½	10½	7½	7¾	8	11	11¼	11	14	12
Sq. ft. Refrigerating Surface	11	15	20	8.2	12.3	...	...	...	25	42	16.5	21	24	41.5	51	48	66	42
B.t.u. Capacity.	385	525	700	650	850	630	840	1200	900	1400	600	750	960	1500	1850	1725	2400	1500
Gals. Brine	6½	9	12	3¼	5¼	...	...	...	...	...	...	...	...	...	...	...	...	...



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Method of Charging Absopure System With Refrigerant

(Concluded from Page 21, Column 5)

and liquid lines can be figured as follows:

"C" Condensing Units ..... 2 lbs.
"E" Condensing Units ..... 4 lbs.
"F" Condensing Units ..... 6 lbs.
"H" Condensing Units .....10 lbs.
"I" Condensing Units .....10 lbs.
"J" Condensing Units .....10 lbs.

From the above data and the freezing unit specifications tabulated on page 21, you can readily figure the amount to put into any system.

It is an easy matter to check up on the charge in a system using one of the large condensing units that has a gauge glass on the receiver. Simply open the valves a fraction of a turn above and below the glass, and you will see the liquid level in the receiver. The receiver should be about one-third full of liquid.

Too Little Charge in a system is usually indicated by a lack of refrigeration at one or more of the freezing units. As a rule, the one farthest from the condensing unit will start to fail first. A float-type freezing unit that makes a hissing sound at the valve without having an abnormally cold suction line indicates a shortage of refrigerant.

Too Much Charge is almost always indicated by a high head pressure. On water-cooled systems using a control with a high pressure cut-out, the unit keeps stopping due to the high pressure.

Preparing to Charge

After a system is installed, it should be tested for leaks by imposing a pressure of 125 lbs. on it. Air should not be used for this as it contains moisture.

A drum of CO_2 does very nicely to obtain the desired pressure. Leave the line valve on the side of the compressor and the line valve on the receiver shut off so that the test will not include that part of the system.

Run a copper tube from the CO_2 tank to a fitting in the port in the line valve on the side of the compressor. Put a tee in this line and put a gauge on it.

Watching the gauge closely, slowly open the valve on the CO_2 tank. Do not run the pressure over 125 lbs. at any time. Shut off the valve on the drum as soon as this pressure is reached.

Examine every joint and connection on the system for leaks. Lather made from shaving soap, or oil applied to the joints will show the leaks if you look carefully. The pressure gauge will not show a drop in pressure if there are no leaks.

Repair all the leaks you find and let the system stand with 125 lbs. pressure on it for at least four or five hours before proceeding. If the pressure drops, locate and repair the rest of the leaks; if it does not drop, it shows that there are no leaks, and you can proceed.

It is next necessary to remove the CO_2 from the system. Do not attempt to draw a vacuum on the system with the compressor that is a part of the system. A single cylinder compressor mounted on a base with a motor is a valuable addition to the installation equipment.

Disconnect the line from the CO_2 tank and let the CO_2 out of the system. Connect this line to the suction side of the single cylinder compressor you are using as a vacuum pump. Run this compressor until it fails to discharge air or CO_2 from the head valve.

A short copper line from this head valve into a glass of water will readily tell you when it quits discharging. Let it run as long as it is taking air or CO_2 out of the system.

Charging the System

It is usually best to charge large systems out of 90-lb. drums. They should always be charged through the suction side of the machine, drawing the methyl chloride into the system in the form of vapor.

After evacuating the system as described above, open the suction line valve on the side of the compressor that is a part of the system by screwing the valve stem out as far as it will go. This will leave the system with a vacuum on it.

Disconnect the line from the side of the vacuum pump; connect it to the connection on the fitting on the methyl chloride drum. By opening the valve on the drum and screwing in on the stem of the valve on the side of the compressor, you will admit methyl chloride vapor to the system, relieving the vacuum.

When this has been done, close the suction line valve on the side of the compressor by screwing the stem in as far as it will go. Now start the compressor, drawing vapor into the system. Be sure, if the condenser is water-cooled, that the water is on.

A rubber hose from a handy hot water tap running hot water over the methyl chloride drum will help to keep the pressure up and speed up the work of charging the system.

A 90-lb. drum of methyl chloride, standing in an upright position, contains methyl chloride to a height of about 45 in.

When you start to charge, determine the level and mark it. This gives you a chance to check up at any time on how much refrigerant you have put into the system.

When charging a system, it is well to remember that you are building up a comparatively high pressure in the low pressure side of the system.

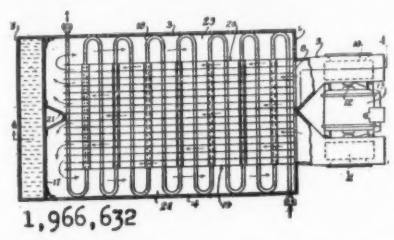
If the system is a large one, it is well to stop charging when the system is not fully charged, open the suction line valve on the side of the compressor, shut off the methyl chloride drum, and let the compressor pull the suction line pressure down to 10 or 15 lbs.

PATENTS

Issued July 17, 1934

1,966,632. AIR CONDITIONER. Lester U. Larkin, Atlanta, Ga., assignor to Larkin Refrigerating Corp., Atlanta, Ga., a corporation of Georgia. Application Sept. 1, 1933. Serial No. 687, 873. 7 Claims. (Cl. 257—202.)

1. In ventilating apparatus, a casing, rows of cooling pipes spaced apart parallel to each other in said casing, means



1,966,632

for forcing air through said casing across said pipes, heat conducting fins perpendicular to said pipes and heat conducting baffle plates mounted on said rows between said fins and in contact with said pipes and staggered between opposite walls of said casing to force the air to move in a circuitous path through said casing

1,966,641. REFRIGERATING APPARATUS. Edward B. Newill, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a corporation of Delaware. Application July 30, 1931. Serial No. 554,058. Renewed Nov. 8, 1933. 5 Claims. (Cl. 20—35.)

1. In combination with a cabinet provided with a door opening, a door construction including an inner metal lining, an outer metal lining and insulating material between said linings, a gasket seal between the adjacent ends of said linings, said gasket seal including a sealing portion and laterally extending portions, a retaining strip between said laterally extending portions, fastening members extending through said retaining strip and one of said laterally extending portions into the door construction for securing said gasket to said door construction.

1,966,648. LIQUID COOLING APPARATUS. Fritz R. Ryberg, Cleveland, Ohio. Application March 19, 1931. Serial No. 523,735. 2 Claims. (Cl. 62—89.)

1. In a refrigerating apparatus having a cooled chamber, means, on an interior face of a wall thereof, for mounting a liquid-supply container; a cup, mounted within the chamber, adapted to receive liquid delivered from that mounted container when said container is inverted with its mouth depending into said cup; a conduit connection from the cup through the chamber wall; and an exterior draw-off valve; said mounting means comprising a bracket of stiff sheet metal having a vertical body, secured to the wall rising above the center of gravity of the container; fastening means extending from the upper part of the bracket, holding the upper portion of the bottle against the wall; said bracket having also a part supporting said cup, bent away from the wall at the lower end of said body; means securing said cup also to a higher part of the bracket; and a portable bottle, constituting the said container, with mouth in the cup; there being a rim gasket on the cup, and the shoulders of said bottle resting on said gasket rim.

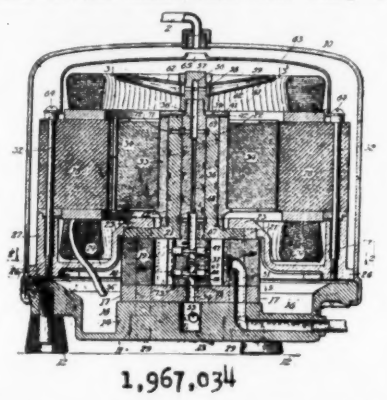
1,966, 881. INDUSTRIAL LIQUID. Geza Braun, New York, N. Y., assignor to Paul J. Sartain, Philadelphia, Pa., Richard C. Fassnacht, New York, N. Y., and Richard C. Schwoerer, Philadelphia, Pa. No drawing. Application Feb. 23, 1933. Serial No. 658,141. 10 Claims. (Cl. 252—5.)

2. An industrial liquid comprising halogenated hydrocarbon, having dissolved therein from ½ to 2% of a non-corrosive unsaturated hydro-aromatic compound to said hydrocarbon.

3. An industrial liquid including a halogenated hydrocarbon, having a quantity of pinene dissolved therein sufficient to neutralize the corrosive action of the hydrocarbon.

1,967,033. REFRIGERATING APPARATUS. Carl E. L. Lipman, Chicago, Ill., assignor to Lipman Patents Corp., Chicago, Ill., a corporation of Delaware. Application February 14, 1930. Serial No. 428,286. 20 Claims. (Cl. 62—115.)

1. A refrigerating apparatus comprising a closed casing adapted to contain a refrigerant under pressure and providing an oil sump, a housing within said casing providing a refrigerant compressor rotor chamber, a compressor rotor disposed within said chamber and provided with lateral blade receiving slots, a blade reciprocable in each of said slots, an electric motor disposed within said casing and connected to rotate said rotor, means for admitting refrigerant gas together with a restricted amount of oil into the chamber around the rotor, means for admitting oil together with a restricted amount of gas from the upper portion of said casing into said slots at the inner sides of said blades, said rotor being ar-



1,967,034

ranged to discharge refrigerant under pressure into said casing, a refrigerant circulating system connected to said casing and the suction side of said compressor, and means for delivering oil from said compressor into heat absorbing contact with said motor to enable absorption by said oil of heat units generated by said motor.

1,967,034. MOTOR COMPRESSOR UNIT. Carl E. L. Lipman, Chicago, Ill., assignor to Lipman Patents Corp., Chicago, Ill., a corporation of Delaware. Application May 19, 1930. Serial No. 453,590. 11 Claims. (Cl. 230—207.)

1. An apparatus comprising a tubular supporting standard, a sleeve surrounding and journalled on said standard, a motor including a rotor and stator surrounding said sleeve, the rotor being carried by the sleeve, a rotary pump having a hollow shaft extending through said standard, and means for driving said shaft from said sleeve, the discharge side of said pump being connected to the interior of said hollow shaft to discharge therethrough.

1,967,035. MOTOR COMPRESSOR UNIT. Carl E. L. Lipman, Chicago, Ill., assignor to Lipman Patents Corp., Chicago, Ill., a corporation of Delaware. Application May 8, 1933. Serial No. 669,907. 3 Claims. (Cl. 230—207.)

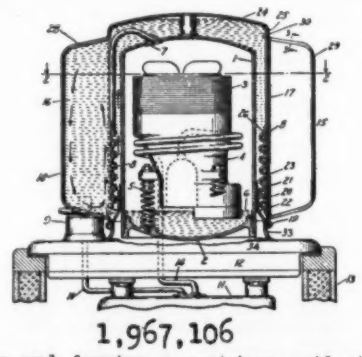
1. A motor compressor unit comprising a cylindrical horizontally disposed hermetically sealed casing, one end wall of which is provided with an inwardly extending support, a compressor housing carried by said support and having a hollow bearing stud projecting horizontally therefrom, a compressor rotor within said housing provided wtih radially disposed blade slots and having a shaft journalled in said stud, radially disposed blades slidably mounted in said slots, an electric motor having its rotor journalled on said stud and operatively connected to said shaft, said support being provided with passages through which fluid to be compressed is delivered from outside said case to the working chamber of said compressor and from said chamber to the interior of said case, the base plate of said compressor housing disposed against said support being provided with a plurality of elongated ports with which said blade slots successively register during rotation of said rotor, one of said ports being an oil inlet port to the chamber and the others being oil discharge ports therefrom, means for conducting oil discharged through one of said ports to a point in said case directly over the stator of said motor and delivering said oil onto said stator to cool the same, and means for conducting the oil discharged from another of said ports to the motor and compressor bearings to lubricate the same.

1,967,058. REFRIGERATOR CASE FOR GREEN VEGETABLES. Charles B. Longstreth, Denver, Colo. Application Sept. 7, 1932. Serial No. 631,966. 1 Claim. (Cl. 62—89.5.)

A refrigerating display case for raw vegetables comprising, a casing having a display compartment open at the top and provided with an imperforate bottom, an inclined foraminated supporting surface for the vegetables, the display case being also provided with a narrow chamber that extends vertically along the rear wall and in which is located a refrigerating element, the chamber having an opening at its bottom, the vertical chamber serving as means to direct a current of air over the refrigerating element and for discharging the air onto the vegetables whereby the vegetables will be covered by a moving layer of cold air that is substantially saturated, and a plurality of baffle plates located in the vertical chamber between the refrigerating element and the discharge opening at the bottom whereby water will be separated from the air.

1,967,106. CONDENSER FOR REFRIGERATING MACHINES. Christian Steenstrup, Schenectady, N. Y., assignor to General Electric Co., a corporation of New York. Application Aug. 26, 1931. Serial No. 559,519. 4 Claims. (Cl. 257—36.)

1. In a refrigerating machine, a casing, a condenser comprising a side wall of zigzag form hermetically sealed to said cas-



1,967,106

ing and forming a container, said side wall constituting vertical hollow fins communicating with the container and surrounding said casing, a chamber adapted to contain refrigerant arranged in said container and extending about said casing, said container having a heat conducting liquid therein to dissipate heat from said refrigerant chamber and said casing.

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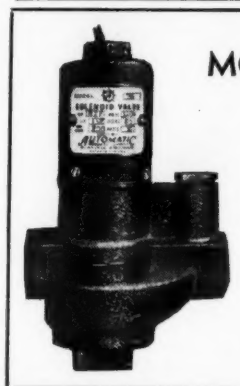

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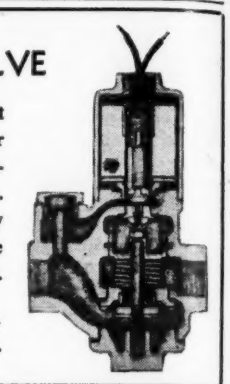

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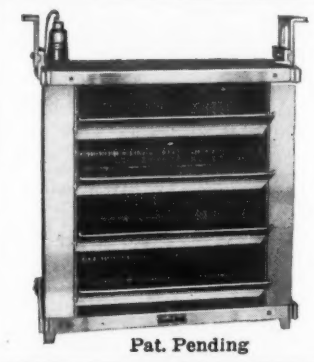

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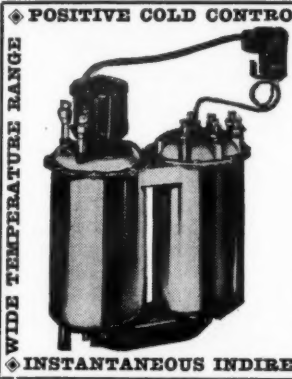

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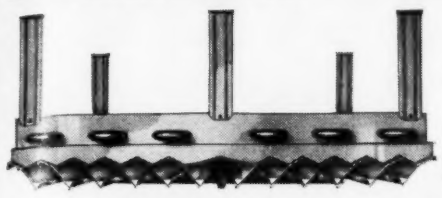

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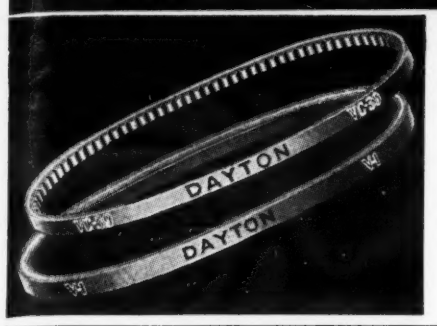

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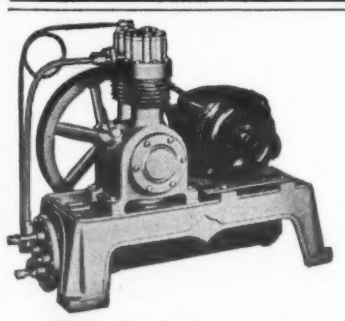

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Style EW—Water Cooled With Water Cooled Head

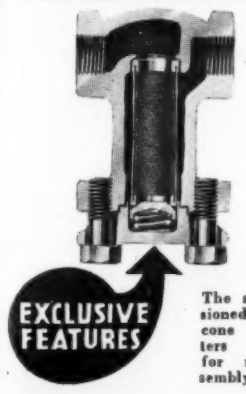
A convenient way to keep your back issues of the News

We offer a binder designed and made especially for keeping your file copies of Electric Refrigeration News neat and always available for ready reference.

It is made of stiff board covers, attractively bound in good quality of black imitation leather. The name Electric Refrigeration News is stamped in gold on the front cover and backbone.

The price is $3.75 shipped to you post paid in the United States and Possessions and Pan-American Postal Union countries. For all Foreign countries, postage based on a shipping weight of 6 pounds must be added to this price. Send your remittance with order. May we send you one?

Electric Refrigeration News, 5229 Cass Ave., Detroit, Mich.



EXCLUSIVE FEATURES

The spring tensioned retaining cone also centers cartridge for ready assembly.

HENRY SCALE TRAP
For Freon and Methyl Chloride

Larger capacity insures longer service without cleaning. Monel screen is held in lead collars at top and bottom. Positive uniform seal established throughout by spring tensioned retaining cone located in base of trap.

HENRY VALVE CO.
Specialized Valves & Fittings for Refrigeration
1001-19 N. Spaulding Ave., Chicago

WRITE FOR BULLETINS DESCRIBING HENRY REFRIGERATION SPECIALTIES

QUESTIONS

Rice Replacement Parts

No. 1769. (Pennsylvania)—"Please advise where we can secure parts for a Rice electric refrigerator."

Answer: Replacement parts for all types of Rice refrigerating units can be purchased from Rex Cooling Industries, Inc., 291 Adams St., Brooklyn, N. Y. They offer to send a price list on request.

Steam Ejector Units

No. 1770. (Manufacturer, Iowa)—"Will you please give us the names of steam operated vacuum systems for cooling water under a vacuum for use in large air-conditioning plants or systems of from 500 to 1,000 tons total capacity.

"If this information is given in your REFRIGERATION DIRECTORY, copy of which we have, please advise us where it can be found."

Answer: Manufacturers of steam-operated vacuum systems are listed on page 308 of the DIRECTORY under "Steam Ejector Refrigeration Units."

Books

No. 1771. (Manufacturer, Wisconsin)—"The writer would appreciate it very much if you would let us know the names of several good available text books on household electric refrigeration and air conditioning."

Answer: Some available books on household refrigeration and air conditioning are as follows: "Household Refrigeration" by H. B. Hull, published by Nickerson & Collins Co., 435 N. Waller St., Chicago; "Air Conditioning" by Moyer & Fittz, published by McGraw-Hill Publishing Co., 330 W. 42nd St., New York City; and "Air Conditioning for Comfort" by Samuel Lewis, published by Engineering Publications, Inc., 1900 Prairie Ave., Chicago.

Pressure Recorders

No. 1772. (Distributor, Porto Rico)—"We are interested in a recording gauge suitable for checking the operating back pressure of a compressor and should like to know the name and address of any manufacturer making these instruments."

Answer: See "Pressure Recorders" on page 309 of the 1934 REFRIGERATION DIRECTORY.

Specifications

No. 1773. (Manufacturer, Georgia)—"We will appreciate it if you will advise if your REFRIGERATION DIRECTORY AND MARKET DATA BOOK contains sizes and descriptions of different machines on the market."

Answer: The 1934 REFRIGERATION DIRECTORY contains specifications of household electric refrigerators, commercial refrigerating machines, and commercial display cases and counters. These specifications were correct as of the time of publication of the DIRECTORY.

The May 30 issue of ELECTRIC REFRIGERATION NEWS was a household specification issue and contained the latest data on 285 models of 37 makes of household electric refrigerators, including changes made in various models and new models added.

A commercial specifications issue of ELECTRIC REFRIGERATION NEWS will be published on September 12, and will give complete data on all compressors for commercial refrigeration applications including new machines brought out since the publication of the DIRECTORY.

Operating Costs

No. 1774. (Department Store, Ohio)—"As a constant reader of your paper, I would appreciate any information, bulletins, etc. on the operating expense breakdown on various appliance departments in department stores in various sections of the country.

"I should like to compare these figures with my own relative to sales cost, service expense, advertising, etc. and net profit."

"If you are unable to supply this information, would you please suggest where I might obtain it."

Answer: A 40-page report on "1933 Departmental Merchandising and Operating Results" which covers various phases of store operations by departments is published by Comptrollers' Congress of the National Retail Dry Goods Association, 225 W. 34th St., New York City. A breakdown of operating expenses for electrical appliance departments is included.

Refrigeration Schools

No. 1775. (Iowa)—"Will you please send me a sample copy of ELECTRIC REFRIGERATION NEWS and subscription price of same. Also can you recommend any good service schools where electrical refrigeration may be taken up."

Answer: For institutions giving courses in electric refrigeration see advertisements on page 303 of the 1934 REFRIGERATION DIRECTORY.

Sales by Months

No. 1776. (Federal Reserve Bank New York)—"In the July issue of Dun & Bradstreet's review, the unit sales of electrical household refrigerators were published from 1930 to date by months. We should like to have monthly figures on this series as far back as they are available in order that we may include this series in our index of the Volume of Trade."

Answer: The record of household electric refrigerator sales by months begins with 1930. The Refrigeration Division of the National Electrical Manufacturers Association compiled its first reports of sales by member companies in 1931, carrying its records back to include the years 1928 through 1931, but 1930 was the first year for which sales were given by months. The all-industry estimates of monthly sales made by ELECTRIC REFRIGERATION NEWS, which use the Nema figures as a base, begin with 1930, and we have no record by months for the years previous, although our estimates by years extend back to 1920. Monthly sales for 1930 through 1933 will be found on page 470 of the 1934 REFRIGERATION DIRECTORY.

'Coronado' Refrigerator

No. 1777. (Dealer, Illinois)—"Please advise if the Coronado refrigerator is still manufactured and, if so, by what company."

Ice-O-Lator Service

No. 1778. (Pennsylvania)—"I have an Ice-O-Lator refrigerator, the type with the absorber and other equipment to be placed in the cellar or some place outside of the refrigerator box proper.

"I have looked everywhere for information as to how to connect it up. A service man referred me to your organization as a possible source of this information. If you could supply me with a drawing of how to connect the refrigerator up, I would certainly appreciate it. If that is not available, I would like to have a cycle chart for same.

"There is no model number or other information on the refrigerator that I could send that might be of help to you. If you cannot furnish this information maybe you could tell me where I may be able to get it."

Answer: The Ice-O-Lator refrigerator was manufactured by the National Refrigeration Corp., a division of the Winchester Repeating Arms Co., New Haven, Conn. Patent rights were later purchased by Frigidaire Corp., and we believe that some of the features were incorporated in the Faraday which is now out of production.

We are attempting to obtain information about the Ice-O-Lator refrigerator, and will be glad to forward anything of value which is received.

Hydro-Refrigeration Co.

No. 1779. (Manufacturer, Ohio)—"Could you furnish me with any information pertaining to service and operation of a refrigeration unit by the Hydro-Refrigeration Co., Inc., Cleveland, O.

"Would also appreciate name of the refrigerant used."

Answer: This name is new to us. If any reader has information about this company, we will be glad to forward it to the inquirer.

Refrigerator Manufacturers

No. 1780. (Manufacturer, Indiana)—"The writer was informed by Mr. Warren of the General Electric Co.'s distributing office, this city, that a list of electric refrigerator manufacturers is compiled by you in connection with ELECTRIC REFRIGERATION NEWS.

"We would thank you to advise us the cost of this list or if there is no charge, please let us have a copy."

Answer: Manufacturers of household electric refrigerators are listed in the 1934 REFRIGERATION DIRECTORY beginning on page 262.

Several manufacturers have brought out household electric refrigerators since the DIRECTORY was published. They are as follows: Truscon Steel Co., Electric Refrigeration Division, Cleveland, O; Fairbanks-Morse Home Appliances, Inc., 430 S. Green St., Chicago, Ill.; National Refrigeration Corp., 924 E. Monument Ave., Cleveland, Ohio.

'Literature'

No. 1781. (Service Co., Minnesota)—"Some weeks ago I received literature concerning a new publication on air conditioning in twelve chapters as I recall it. I misplaced the literature and would like to know the name of the author and publisher. I believe that the literature was mailed out through your office."

"Should you have a book on the subject kindly send it out on approval, and if it is what I want I shall remit for the same."

Answer: We have not published a book on air conditioning nor distributed literature concerning such a book, but ELECTRIC REFRIGERATION NEWS reports developments in air conditioning in each issue.

You may have in mind a mailing piece sent out by the International Correspondence Schools, Scranton, Pa., which announced a course in air conditioning covering twelve subjects.

Superior Refrigerator

No. 1782. (Dealer, Pennsylvania)—"Please advise where we can secure repair parts for the Superior Electric Refrigerator."

Answer: We do not know. Can anybody supply information?

Air Conditioning Cabinet

No. 1783. (Manufacturer, Michigan)—"We are manufacturers of air-conditioning mechanisms and are interested in locating a source of supply for cabinets in which to enclose our mechanisms."

Answer: Manufacturers of cabinets for air-conditioning mechanisms are listed on page 150 of the 1934 REFRIGERATION DIRECTORY under "Housing Cabinets."

Air Conditioning Books

No. 1784. (New Jersey)—"I am interested in an up-to-date list of text books on air conditioning for domestic use (home and office) and a general idea on industrial applications. I plan to study this matter with an idea on the future but am not an engineer with college degree, and therefore want to get into it gradually. I am interested in the sales angle mainly and would welcome your suggestions as to educational reading and study along the above lines.

"I would like the names of current books, the publisher and where they can be purchased. I am anxious to secure a real understanding of the whole subject to work in gradually from the domestic refrigeration field I have been in for the last six years."

Answer: One issue of ELECTRIC REFRIGERATION NEWS each month is devoted particularly to air conditioning and the weekly issues report current progress in this field.

Some books on air conditioning are as follows: "Air Conditioning" by Moyer & Fittz, published by McGraw-Hill Publishing Co., 330 W. 42nd St., New York City, and "Air Conditioning for Comfort" by Samuel Lewis, published by Engineering Publications, Inc., 1900 Prairie Ave., Chicago, Ill.

CLASSIFIED

PAYMENT in advance is required for advertising in this column.

RATES: Fifty words or less, one insertion $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each.

POSITIONS AVAILABLE

QUALIFIED Salesmen wanted who understand Refrigeration Beer Cooling Equipment to call on dealers and jobbers throughout the United States for one of the largest manufacturers of Portable Electric Steam Sterilizing Units. Trade name "Steamsterile". Territories, drawings, and repeat commissions. Product absolutely new, mechanically perfect. Most attractive, and priced to sell. Box 634.

YOUNG EXECUTIVE, twelve years refrigeration experience, domestic and commercial. Considerable experience hiring, training, and operating sales. Exceptional analytical and sales ability. Dynamic and intensive in operations. Familiar with increasing volume as distributor-dealer man. Will travel to suit position or act as branch manager for manufacturer handling sales, service, installations, etc. Box 636.

POSITIONS WANTED

SALES engineer available: Fifteen years' experience in every branch of air conditioning and refrigeration. Can lay out, design, build, and sell systems. Have sold 324 tons of Freon and Methyl Chloride Air Conditioning plants in the past 90 days. Am now employed but am going to make a change. Box 635.

FRANCHISE OPEN

DISTRIBUTORS WANTED for improved type automatic coal stoker for residential use. Two years successful operation. Simplest design on market; therefore priced considerably under present price level, including a liberal profit margin for both distributor and dealer. Manufactured by old, well-established concern. Exclusive territories still open. Write for full particulars. Leach Company, Oshkosh, Wis.

FOR SALE, the leading refrigerator dealership in a famous Florida resort center. This dealership has shown a profit every year during the depression. Twelve to fifteen thousand required to handle. Box 633.

DOMESTIC REFRIGERATION REPLACEMENT JOBBERS: Attractive Replacement Unit. Big demand. Large profits. Write Chas. Muller, Sales Mgr., Mid City National Bank Building, Chicago, Ill.

INDEPENDENT SERVICE COMPANIES

GUARANTEED thermostat repair service, B and B, G. E., Cutler-Hammer, Penn. Ranco, Tag, etc. Regrind and polish float valve needles ten cents per needle, $1.00 minimum charge. Expansion valves repaired. Gas service, Methyl, Ethyl, Sulphur, Iso-butane and others. Any amount, your cylinder or ours. Competitive prices. Halectric Laboratory, 1793 Lakeview Road, Cleveland, Ohio.